User Manual

Smart Power Transducer

PD1000



BrainChild

Brainchild Electronic Co., Ltd.

UMPD1000A

V1.0, 05/2007

Content

Chapter 1 Introduction

1.1 Product Introduction

PD1000 is designed for continuous monitoring of 3 phase system. All essential power parameters measure including current, voltage, power, active and reactive energy are integrated in a single meter. Its bi-directional energy measurement and harmonic analysis function makes PD1000 suitable for modern industrial power management. The built-in Ethernet and rich communication abilities enable PD1000 to be easily connected with most modern third-party SCADA systems.

Features

	Standard Model	Advanced Model
Power parameters measure		
Current：3 phase, neutral, accuracy 0.1%	●	●
Voltage：3 phase phase-phase, phase-neutral, accuracy 0.1%	●	●
Frequency：50/60 Hz	●	●
Total power：Active, reactive, apparent power, accuracy 0.5%	●	●
Power per phase：Active, reactive, apparent power, accuracy 0.5%	●	●
Power factor：Total, per phase	●	●
Auto wiring detection	●	●
Energy measure		
Energy：Active, reactive, apparent energy, accuracy 0.5%	●	●
Bi-directional energy：Deliver and receive kWh, kVARh, kVAh	●	●
Display and input/output		
Panel display：Mono 128 x 128 STN-LCD	●	●
Digital input：12 channel dry contact inputs	●	●
Digital output：2 channel relays for alarm or kWh pulse output	●	●
Analog input：4 channel 4-20mA inputs（**option**）	●	●
Analog output：4 channels 4~20mA for V, I, kW, kVA, kVAR（**option**）	●	●
Voltage connection：1~600V	●	●
Current connection：2mA～5A	●	●
Power supply：86~242VAC or 100~125VDC	●	●
Communication		
Primary port：RS485 Modbus or DNP 3.0 protocol	●	●
Secondary port：Ethernet : 10/100 Mbps, Modbus over TCP/IP protocol（**option**）		●
Free topology twist pair：LonTalks protocol（**option**）		●
Demand measure		
Block/Rolling demand		●
Power Quality measure		
Harmonic：V, I THD and individual harmonics		●
Sag/Swell：Configurable setting points		●
Report and event logging		
Report：Daily report : this day, yesterday；Regular report : this period, last reset		●
Event logging：Sag, swell, alarm logging		●

1.2 Caution

1.2.1 Danger

PD1000 contains hazardous voltages. The meter should never be disassembled. Failure to observe this practice can result in serious injury or death. Any work on or near energized meters, meter sockets, or other metering equipment can present a danger of electrical shock. It is strongly recommended that all work should be performed only by qualified industrial electricians and metering specialist. We assume no responsibility if your electrical installer does not follow the appropriate national and local electrical codes.

1.2.2 PRODUCT WARRANTY & CUSTOMER SUPPORT

Brainchild warrant all products free from defects in material and workmanship for a period of one year from the date of shipping. During the warranty period, Brainchild will, at our position repair the product that proves to be defective.

Please have the model, serial number and a detailed problem description available. If the problem concerns a particular reading, please have all meter readings available. When returning any merchandise to us, a return materials calibration number is required.

1.2.3 LIMITATION OF WARRANTY

This warranty does not apply to defects resulting from unauthorized modification, misuse, or use for reasons other than electrical power monitoring. The supplied meter is not a user-serviceable product.

Chapter 2 General Features

＊：only in Advanced model

2.1 Power parameters measure and accuracy

Current：3 phase, neutral, accuracy ＜ 0.1%
Voltage：3 phase phase-phase, phase-neutral, accuracy ＜ 0.1%
Frequency：47/63 Hz
Total power：Active, reactive, apparent power, accuracy ＜ 0.5%
Power per phase：Active, reactive, apparent power, accuracy ＜ 0.5%
Power factor：Total, per phase

2.2 Energy measure

Energy：Active, reactive, apparent energy, accuracy ＜ 0.5%
Bi-directional energy：Deliver and receive kWh, kVARh, kVAh

2.3 Demand measure*

Bi-directional Block/Rolling demand

2.4 Power Quality measure*

Harmonic：V, I THD and individual harmonics, up to 31 orders
Sag/Swell：Configurable setting points

2.5 Report and event logging*

Report：Daily report : this day, yesterday
Regular report : this period, last reset
Event logging：Sag, swell, alarm logging

2.6 Display and input/output

Panel display：Mono 128 x 128 STN-LCD
Digital input：12 channel dry contact inputs
Digital output：2 channel relays for alarm and kWh pulse output
Analog input：4 channel 4-20mA inputs（**option**）
Analog output：4 channels 4~20mA for V, I, kW, kVA, kVAR（**option**）
Voltage connection：1~600V
Current connection：2mA~5A
Power supply：86~242VAC or 100~125VDC

2.7 Communication

Primary port：RS485 Modbus or DNP 3.0 protocol
Secondary port*：Ethernet : 10/100 Mbps, Modbus over TCP/IP protocol,
Free topology twist pair*：LonTalks protocol

2.8 Environmental & Physical

Operation temperature：-10℃to 55℃
Storage temperature：-25℃ to 60℃
Humidity：95%RH (non-condensing)
Dimensions：142mm(L) x 142mm(W) x 94mm(H)

2.9 Ordering Code

PD1000 - □ □ □ □

Model

0：Standard

1：Advance (with* in specification)

Secondary Port

0：None

1：Ethernet (in advanced model only)

2：Free topology twist pair Lontalks

(To be available in near future)

AI function

0：None

1：With AI function

AO function

0：None

1：With AO function

Note：**Standard model does not offer secondary port**

Chapter 3 Installation

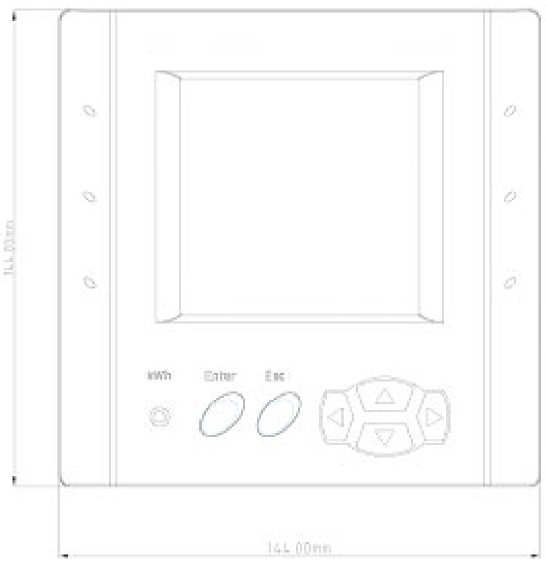
3.1 Safety

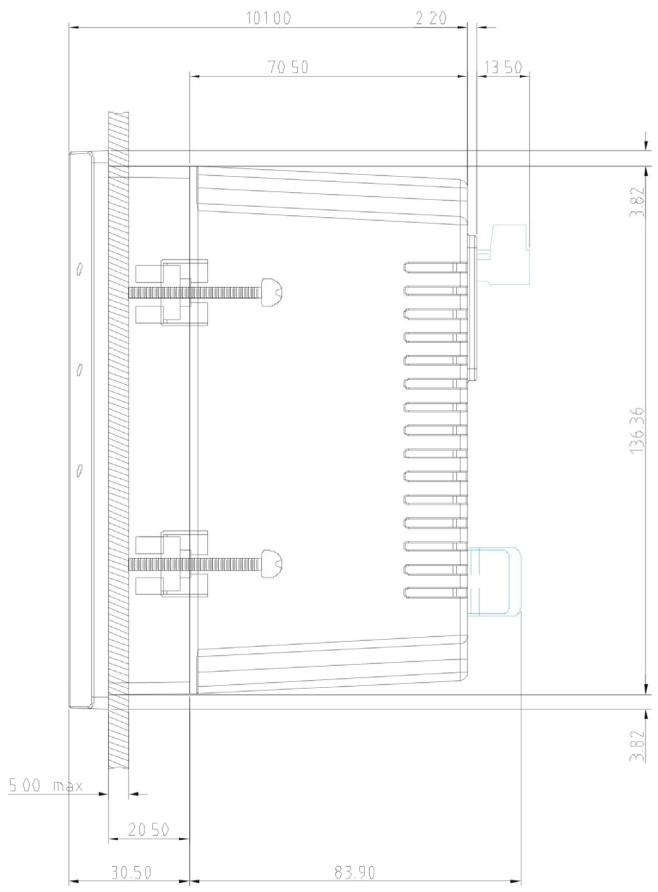
On receipt of the instrument and prior to installation, makes sure it has not been damaged during shipment.
The instrument is no longer safe when,
a) shows clear signs of damage
b) does not work
c) long storage under extreme conditions
d) damage during shipment

3.2 Mounting

- This instrument should install on vibration free switchboard and with environment temperature between -10℃~55℃, humility between 20-80%RH（no condensing）
- For the instrument is already equipped with an internal protection fuse, a 1AmAT HBC fuse is recommended during installation
- Prior to maintain/repair this instrument, always disconnect this instrument from all power sources
- Only have qualified and authorized personnel to carry out installation, maintenance and repair

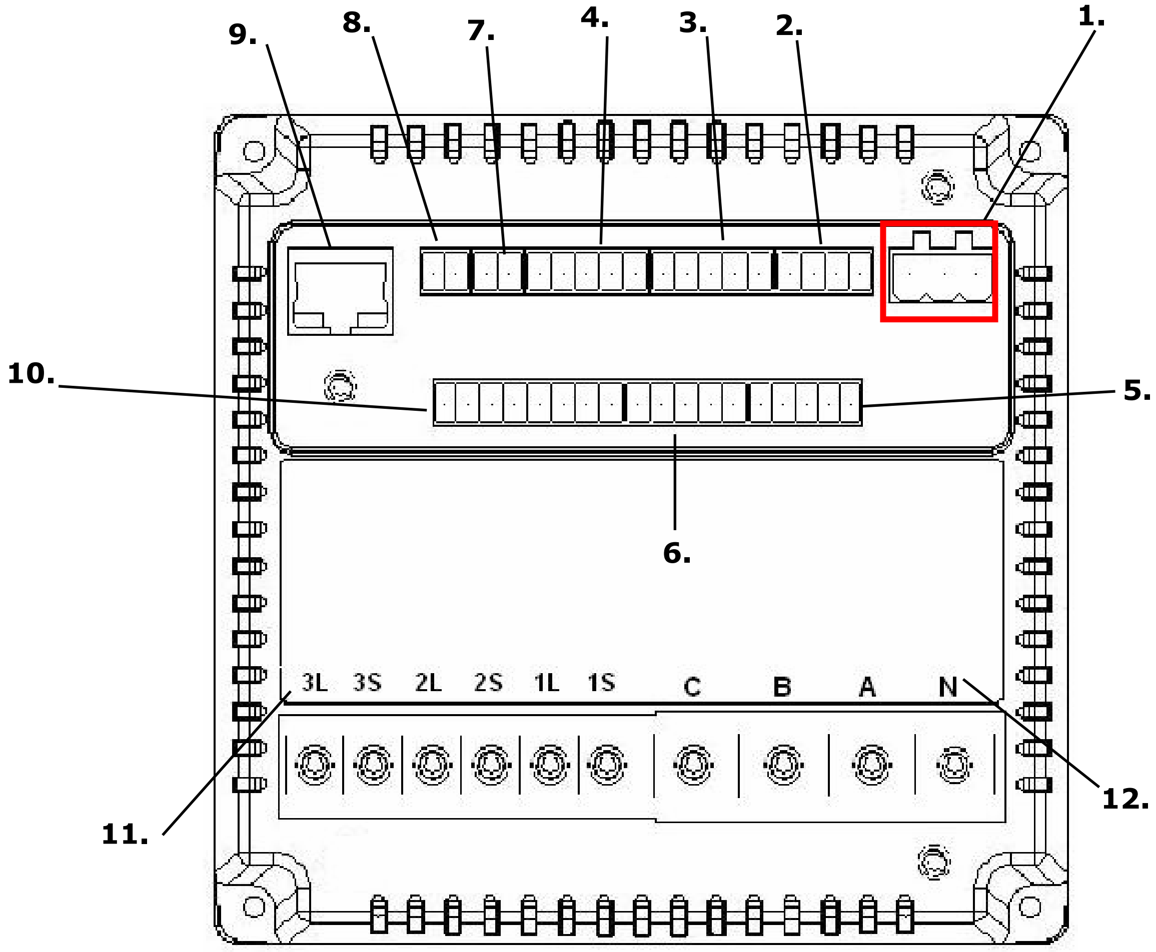
After mounting the instrument, place all four supports latch in position.
Panel cutout area is 138x138mm(+or- 0.5mm)





Chapter 4 Connection

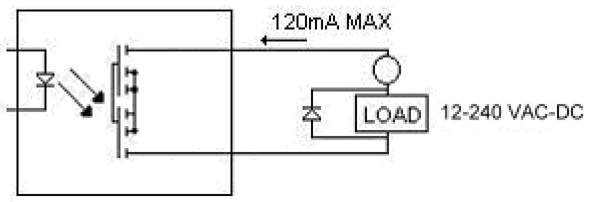
4.1 Back view of connection port



1.	AUX. power
2.	Digital output (Com1 DO1 Com0 DO0)
3.	Analog output (Com1 AO3 AO2 AO1 AO0)
4.	Digital input (Com1 DI13 DI12 DI11 DI10)
5.	Digital input (DI30 DI31 DI32 DI33 Com3)
6.	Digital input (DI20 DI21 DI22 DI23 Com2)
7.	RS485 port (D- D+)
8.	Lon Talks port (D- D+)
9.	Ethernet port
10.	Analog input (AI0+ AI0- AI1+ AI1- AI2+ AI2- AI3+ AI3-)
11.	Current terminal (3L 3S 2L 2S 1L 1S)
12.	Voltage terminal (C.B.A.N)

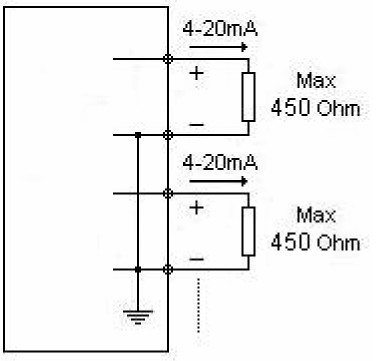
4.1.1 Digital Output

- 2 channel 4 pin digital outputs (Com1 DO1   Com0 DO0)
- 12-230VAC-DC/120mA max
- Com0 DO0 for digital output1, Com1 DO1 for digital output 2
- Port 1 assign selection : V/I Unbal Alarm, THD Alarm, Over V/I Alarm, Under V Alarm, V/I Loss Alarm
- Port 2 assign selection : Energy pulse kh(pulse/kWh)



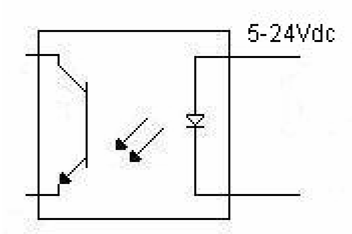
4.1.2 Analog Output

- 4 channel 5 pin current outputs (Com1 AO3 AO2 AO1 AO0)
- 4-20mA current output
- 4 analog outputs selection : phase, voltage, current, power…



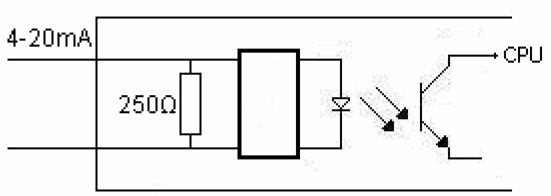
4.1.3 Digital Input

- 3 groups of 12 channel, 15 pin digital inputs (Com1 DI13 DI12 DI11 DI10)、 (DI20 DI21 DI22 DI23 Com2) 、(DI30 DI31 DI32 DI33 Com3)
- 5-24Vdc



4.1.4 Analog Input

- 4 channel 8 pin analog inputs (AI0+ AI0- AI1+ AI1- AI2+ AI2- AI3+ AI3-)
- 4-20mA input



4.1.5 Aux. Power Supply

- Before powering the instrument, verify the pin position at L and N, leave the middle pin blank.
- Power standard is 86-242Vac/100-125Vdc.
- An internal protection fuse 250V, 1A is equipped.
- The instrument power supply must not be earthed.

4.1.6 Current Terminal

- The current input are 3 channels/6 terminals (3L 3S 2L 2S 1L 1S)
- Input current range from 2mA to 5A (CT secondary)

⚠

Warning ！

The CT input current must not exceed 10A

4.1.7 Voltage Terminal

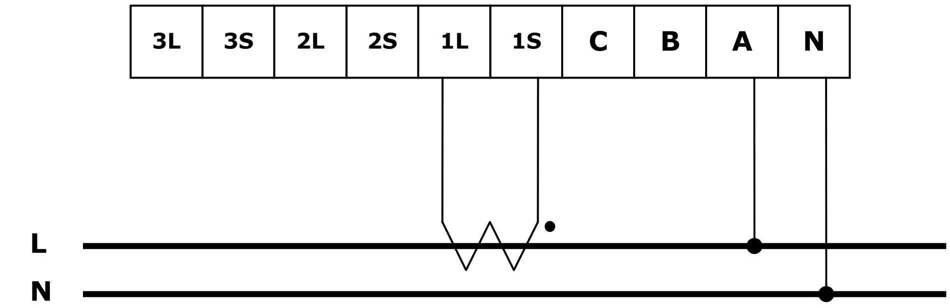
- There are 4 voltage terminals(C.B.A.N) 。
- The instrument measure voltage from 0 to 120V, up to a maximum 600V.（PT secondary）
- Voltage must not exceed 600V. In case of over 600V, voltage transformer needs to be applied.

Note ！

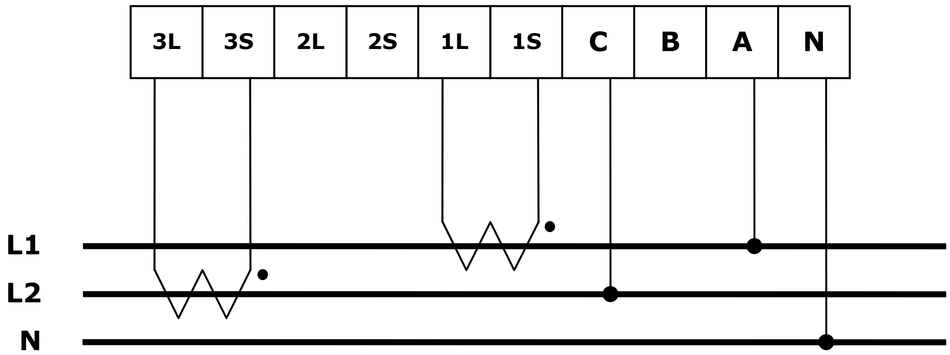
3P3W/2CT and 3P3W/3CT wiring, only connect “C A N”, and leave “B” blank

4.2 Wiring diagram

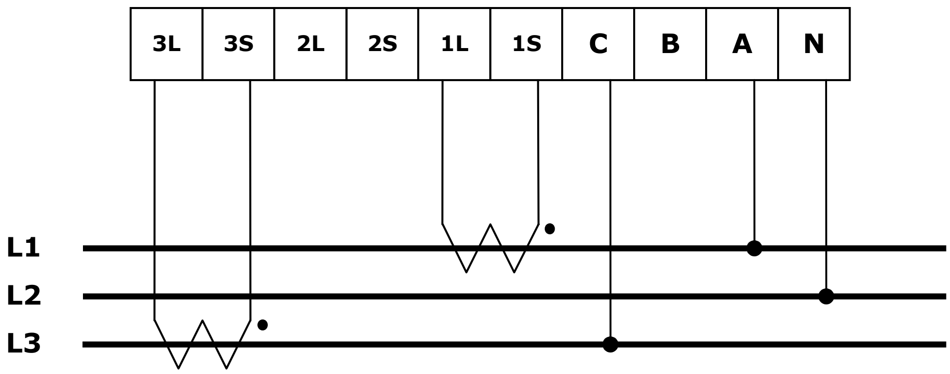
4.2.1 1P2W/1CT



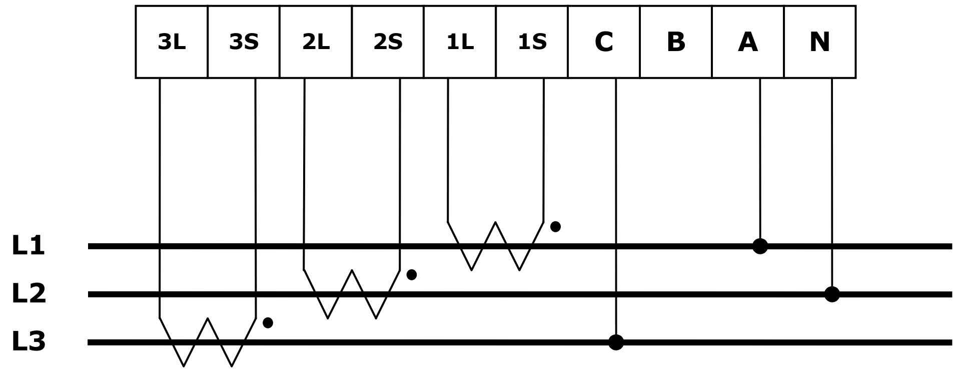
4.2.2 1P3W/2CT



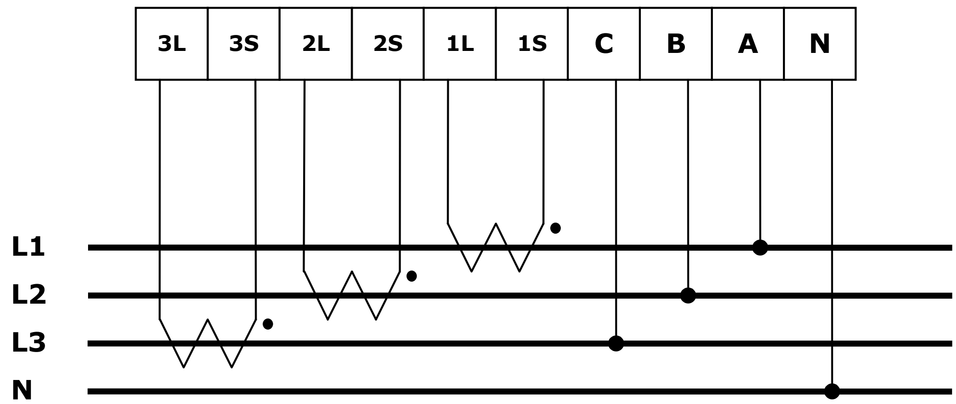
4.2.3 3P3W/2CT



4.2.4 3P3W/3CT



4.2.5 3P4W/3CT



Chapter 5 Function Tree

- **Select Manual**
  - **Setup**
  - **Report**

- **Setup**
  - Clear Function
    - Daily Reset
    - Energy Reset
    - Sag Reset
    - Swell Reset
    - Sag/ Swell Reset
    - Alarm Rcd Rese
    - Reset to Default
    - Reset All
    - Demand Reset
    - Period Reset
  - Basic Setup
    - Communication
      - Modbus
        - Baud Rate
        - CM1 Unit ID
        - Stop Bit
        - Parity Bit
      - Ethernet
        - IP Address
        - Port No
        - Subnet Mask
        - Gateway
        - Mac Address
    - Measurement
      - Volts Mode
      - PT Primary
      - PT Secondary
      - CT Primary
      - CT Secondary
      - Frequency
    - Security
      - Modify PWord
    - Alarm Set Point
      - Enable/Disable
      - Sag/Swell Limit
        - Sag Limit
        - Swell Limit
        - Ref. Primary Voltage
      - Alarm Set Point
        - V Unbal Alarm
        - I Unbal Alarm
        - THD Alarm
        - Over I Phase Alarm
        - Over I Neutral Alarm
        - I Loss Alarm
        - V Loss Alarm
      - Alarm Clear Point
        - V Unbal Alarm
        - I Unbal Alarm
        - THD Alarm
        - Over I Phase Alarm
        - Over I Neutral Alarm
        - I Loss Alarm
        - V Loss Alarm
    - Clock Setup
      - Date
      - Time
    - Digital Output
      - Digital Output 1
      - Digital Output 2
        - Item
        - Kh
    - Analog Output
      - Analog Output 1
      - Analog Output 2
      - Analog Output 3
      - Analog Output 4
        - Phase
        - Item
    - Analog Input
      - Analog Input 1
      - Analog Input 2
      - Analog Input 3
      - Analog Input 4
        - AI High Value
        - AI Low Value
    - Demand Setup
      - Mode
      - No. of Subinterval
      - Subinterval Length
    - Period Reset
      - Mode
      - Date
  - Display Setup
    - Auto Scroll
    - Backlight Timeout
    - Runtime
      - Voltage
        - Phase Voltage
        - Line Voltage
      - Line Current
      - Power
        - Active Power
        - Apparent Power
        - Reactive Power
      - Power Factor
      - Energy
      - Demand
      - Status

Report

- Daily Report
  - Today
    - Energy
    - Max/Min Total Power
    - Max/Min V Avg
    - Max/Min I Avg
  - Yesterday
    - Energy
    - Max/Min Total Power
    - Max/Min V Avg
    - Max/Min I Avg
- Diagnostic
  - This Period
  - Last Reset
- Harmonics
  - Va Harmonics
  - Vb Harmonics
  - Vc Harmonics
  - Ia Harmonics
  - Ib Harmonics
  - Ic Harmonics
- Alarm
- Event Log
  - Sag Record
  - Swell Record
  - Alarm Record
- Analog Input
- Nameplate Info

Chapter 6 Run Time

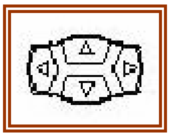
In runtime mode, the instrument is able to measure and store all real time electrical parameters. Following is the table that this instrument can display.

6.1 Display

Display	Items
Average / ΣResult	Vavg、Iavg、ΣLW、ΣLVAR
Phase Voltage	L12 、L23 、L31 V, kV, MV
Line Voltage	L1 、L2 、L3 V, kV, MV
Line Current	L1 、L2 、L3、N A, kA, MA
Active Power	L1、L2、L3、ΣL W, kW, MW
Apparent Power	L1、L2、L3、ΣL kVA, kVA, MVA
Reactive Power	L1、L2、L3、ΣL kVAr, kVAr, MVAr
Power Factor	L1、L2、L3、ΣL
Total Energy	kWh del、rec、total
Total Energy	kVARh ＋(lagging)、－(leading)、total
Demand	kW、Time
Frequency / Status	Freq: Hz Digital Output 1～2 ON/OFF Digital Input 1～4 ON/OFF
Frequency / Status	Digital Input 5～12 ON/OFF

6.2 Run Time Auto scroll

Each screen except Average/Result can be disable/enable individually in the setup mode, and auto scroll time can be disabled or set from 1 to 6 second. The cruise keys are used to move from one page to another one manually.

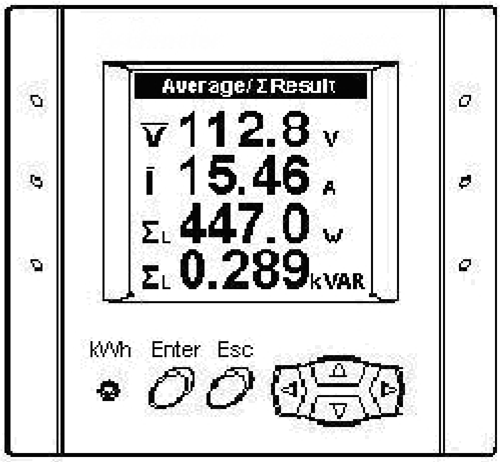


- Use ►to next page
- Use ◄to previous page

Chapter 7 Set up mode

7.1 Display and keyboard

LCD graphic, LED back-lighted, 128 ×128



- kWh light : Pulse output
- Enter key : Entering setup mode, or confirm the selection
- Esc key : Back to runtime mode or return to previous setup page
- Arrow Key : Scroll select item or change the input number or shift input position

7.2 Set up

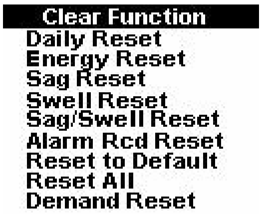




Press Enter to setup mode, enter password-xxxxxxx-7 digits,(default as 0000000), user can modify password by：Setup→Basic Setup→Security→Modify PWord

- Clear Function
- Basic Setup
- Display Setup

7.2.1 Clear Function



Clear function was designed to allow user to easily move and/or reset different data stored in this instrument.

Nevertheless, energy data will not be reset due to its accumulation characteristics expect using the function of "energy reset".

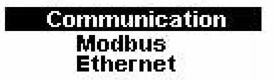
Item	Setup
Daily Reset	■ No ■ Yes
Energy Reset	
Sag Reset	
Swell Reset	
Sag/ Swell Reset	
Alarm Rcd Reset	
Reset to Default	
Reset All	
Demand Reset	
Period Reset	

- Daily Reset：Clear this Day Max/Min & Yesterday Max/Min Record
- Energy Reset：Reset kWh_del、kWh_rec、kWh_tot、kWh_net、kVarh_lagging、kVarh_leading、kVArh_tot、 kVArh_net、kVAh
- Sag Reset：Reset Sag Record
- Swell Reset：Reset Swell Record
- Sag/ Swell Reset：Reset Sag/Swell Record
- Alarm Rcd Reset：Reset Alarm Record
- Reset to Default：Reset all the parameters to default value
- Reset All：Clear This Day Max/Min、Yesterday Max/Min 、Energy、Sag、Swell、Alarm、Demand and move This Period Max/Min to Last Reset Max/Min, also recode reset time. Clear This Period Max/Min
- Demand Reset：Clear Demand data, restart Demand Interval
- Period Reset：Move This Period Max/Min data to Last Reset Max/Min, record reset time, and clear This Period Max/Min data

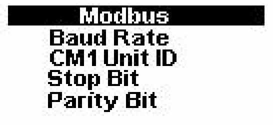
7.2.2 Basic Setup



7.2.2.1 Communication



- **Modbus**



Please refer to the modbus format and parameters in the appendix.

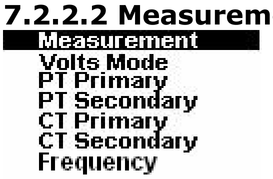
- Baud Rate：Default is 19200
- CM1 Unit ID (1~255)：RS485 Modbus ID address, default is 15
- Stop Bit：bit to signal the end of communication, depending on PC side. Default is 1
- Parity Bit：The total number of bit is always either odd or even, therefore it can be checked during the communication. Default is none

- **Ethernet**



- IP Address：The IP address of computer host, "xxx.xxx.xxx.xxx" is required, here xxx is 0-255
- Port No.：Port no. Has been defined as 502 or 503, please select 502 or 503
- Subnet Mask：If subnet was used, host and subnet IP address are required, please use "xxx.xxx.xxx.xxx" to set
- Gateway：Gateway is used to enter other internet, "xxx.xxx.xxx.xxx" is required
- Mac Address：It is 6 fixed number, can not be changed(xx-xx-xx-xx-xx-xx, 0-FF)

7.2.2.2 Measurement



- Volts Mode：If auto is selected, the wiring method will be detected automatically. Default is Auto
- PT Primary：60~6000000(primary voltage)
- PT Secondary：1~600(secondary voltage)
- CT Primary：1~5000(primary max. current)
- CT Secondary：1~5(secondary max. current)
- Frequency：Default is 60Hz

7.2.2.3 Security



If password cannot be recalled, please contact your local dealer. You can press "Enter" and "► key" at the same time to reset every parameter to default values including password. The default value of password is "000000", 7 digits.
Press ◄ ► keys to move the desired position, ▲▼ keys can change the numerical or alphabetic letters in the selected position

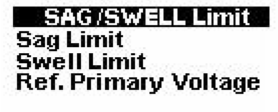
7.2.2.4 Alarm Set Point



- **Enable/Disable**

To enable or disable the alarm setting, if enable is selected, it will be recorded as an event when the alarm was triggered.

- **Sag/Swell Limit**

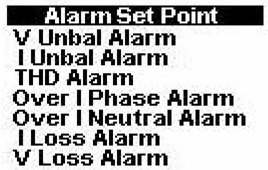


Sag Limit
Sag limit can be set between 80 to 100%, "%" is the unit used. When measured voltage is lower than the sag limit setting but no longer than 1 min. continuously, it will be treated as "Voltage Sag". If longer than 1 min., it will be recorded as "Low Voltage". Use ▲▼ keys to change the setting value.

Swell Limit
Swell limit will be set between 100~120%. When the measure voltage is high than the swell limit compared to primary voltage setting, for less than 1 min. it is treated as "voltage swell". If longer than 1 min., it will be recorded as "Over Voltage". Use ▲▼ keys to change the setting value

Ref. Primary Voltage
Reference Voltage for sag and swell to compare with. (660~600000)

- **Alarm Set Point**



Events due to alarm can be read through communication as defined in the following table：

Item	Description
0x10	Over Current Phase A Alarm
0x11	Over Current Phase B Alarm
0x12	Over Current Phase C Alarm
0x13	Over Current Neutral Alarm
0x14	Current Unbalance Alarm
0x15	Current Loss Alarm
0x20	Over Current Phase A Condition Clear
0x21	Over Current Phase B Condition Clear
0x22	Over Current Phase C Condition Clear
0x23	Over Current Neutral Condition Clear
0x24	Current Unbalance Condition Clear
0x25	Current Loss Condition Clear

0x30	Over Voltage Phase A Alarm
0x31	Over Voltage Phase B Alarm
0x32	Over Voltage Phase C Alarm
0x33	Under Voltage Phase A Alarm
0x34	Under Voltage Phase B Alarm
0x35	Under Voltage Phase C Alarm
0x36	Voltage Unbalance Alarm
0x37	Voltage Loss Alarm
0x40	Over Voltage Phase A Condition Clear
0x41	Over Voltage Phase B Condition Clear
0x42	Over Voltage Phase C Condition Clear
0x43	Under Voltage Phase A Condition Clear
0x44	Under Voltage Phase B Condition Clear
0x45	Under Voltage Phase C Condition Clear
0x46	Voltage Unbalance Condition Clear
0x47	Voltage Loss Condition Clear
0x50	THD Va Alarm
0x51	THD Vb Alarm
0x52	THD Vc Alarm
0x53	THD Ia Alarm
0x54	THD Ib Alarm
0x55	THD Ic Alarm
0x60	THD Va Alarm Condition Clear
0x61	THD Vb Alarm Condition Clear
0x62	THD Vc Alarm Condition Clear
0x63	THD Ia Alarm Condition Clear
0x64	THD Ib Alarm Condition Clear
0x65	THD Ic Alarm Condition Clear

V Unbal Alarm
The range of V unbal alarm limit can be set between 0~10%. Comparing voltage of any phase with the average value of all three phase, if the ratio of the different is greater than the set limit, the alarm will be triggered. As the ratio become lower than the set limit, alarm will be cleared.

I Unbal Alarm
The range of I unbal alarm limit can be set between 0~10%. Comparing current of any phase with the average value of all three phase, if the ratio is greater than the set limit, the alarm will be triggered. As the ratio become lower than the set limit, alarm will be cleared.

THD Alarm
Total harmonic distortion can be set between 0~5%.

Over I Phase Alarm
The over I phase limit can be set between 0~9999 of primary current. As the current of any phase is over the set limit, alarm triggered. When the over I is below the limit, alarm cleared.

Over I Neutral Alarm
The over I neutral alarm can be set between 0-9999 of primary current. As the I neutral is over the set limit, alarm triggered. When the over I neutral is below the set limit, alarm cleared.

I Loss Alarm
I loss alarm value can be set between 0-5000 of primary current. As only one or two I phase is below the alarm setting value, alarm triggered. However, when all three I phase is either greater or lower than the limit, alarm cleared.

V Loss Alarm
V loss alarm value can be set between 0-6000 of primary voltage. As only one or two V phase is

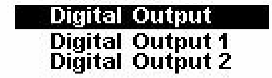
below the alarm setting value, alarm triggered. However, when all three V phase is either greater or lower than the limit, alarm cleared.

7.2.2.5 Clock Setup



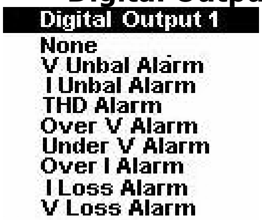
Date and time will be setup here for use in daily report and regular report and event logging. They will be shown as yy/mm/dd and hh:mm:ss.

7.2.2.6 Digital Output



2 channel of digital outputs for alarm output and pulse output.

- **Digital Output 1**



Alarm output can be selected from the list

- **Digital Output 2**



Pulse output, the output item can be none, kWh, kVARh, kVAh. The output pulse unit can be either 1 wh/pulse or 1 kwh/pulse.

7.2.2.7 Analog Output



4 channels of 4-20mA setting, can be assigned to V, I, kW, kVA or kVAR
Data measured from secondary V, I, kW, kVA or kVAR；4-20mA corresponding to the value each items are：
V：1~600V
I：2mA~5A
kW：3 kWatt
kVAR：3 kVAr
kVA：3 kVA
For each analog output, users can choose item like V, I and phase like A, B, all.

7.2.2.8 Analog input

Analog Input
Analog Input 1
Analog Input 2
Analog Input 3
Analog Input 4

AI high value can be from 0-65535, and the corresponding external input is 20mA；low value can be from 0-65535, and the corresponding external value is 4mA.

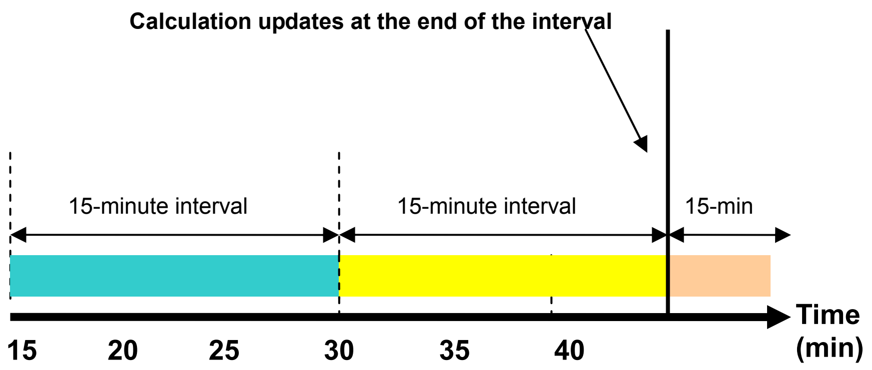
7.2.2.9 Demand Setup

Demand Setup
Mode
No. of Subinterval
Subinterval Length

Mode

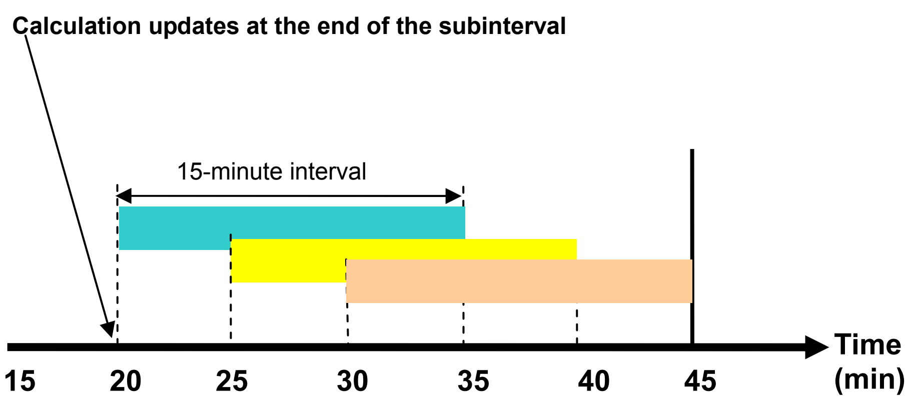
Mode
Block
Rolling

- **Block**



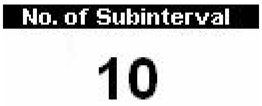
Block Mode

- **Rolling**



Rolling

No. of Subinterval



The No. of subinterval is only needed for Rolling mode, can be 1, 2, 3, 4, 5, 6 or 10

Subinterval Length



Function for both Block and Rolling mode. In block mode, it stands for the total interval time.（No. of subinterval is always 1）. In rolling mode, it stand for only length of the subinterval time, the total interval time will be No. of subinterval times the length subinterval.

7.2.2.10 Period Reset



The function of period reset is designed to move the max/min data happened in one current month to last period, and clear all the max/min data in this month period for the new coming max/min data except the energy data. Energy data will not be reset, instead it will be accumulated.

- **Mode**



When manual is selected, the reset action will be triggered only the reset all in clear function has been applied.
If auto is selected, users will also be asked to enter the date. The system will perform the move and clear action at the date assigned every month.
If date is 2, then at date 2 and 00:00:00 period reset will be executed.
If date is 1, then at date 1 and 00:00:00 period reset will be executed.
If date is 31, then only the month with 31st period reset will be executed at 31st 00:00:00. However, those months without 31st, period reset will executed at 1st 00:00:00 next month.

7.2.3 Display Setup



- Auto Scroll：Can be set between 1-6 sec. or disable. Default is 3s.
- Backlight Timeout：Can be set between 1~5 min.
- Runtime：This setting allows users to select what to display and not to display during the runtime mode. Run time mode display setting is as following：

Item		Setup
Voltage	Phase Voltage	• Disable • Enable
	Line Voltage	
Line Current		
Power	Active Power	
	Apparent Power	
	Reactive Power	
Power Factor		
Energy		
Demand		
Status		

7.3 Report



7.3.1 Daily Report



Every day at 00:00:00, date in today will move to yesterday and clear today’s record except energy data will be accumulated.





7.3.2 Diagnostic



In this section, only max/ min and when they happened in one month period has been stored. The reset will then move this period data to last reset data and clear this period data except energy data.

- **This Period**

<table>
<tr><th>Item</th><th>Setup</th></tr>
<tr><td>Current Time</td><td>Date:
Time:</td></tr>
<tr><td>Max/Min Va</td><td rowspan="12">Max
Date:
Time:

Min
Date:
Time:</td></tr>
<tr><td>Max/Min Vb</td></tr>
<tr><td>Max/Min Vc</td></tr>
<tr><td>Max/Min Ia</td></tr>
<tr><td>Max/Min Ib</td></tr>
<tr><td>Max/Min Ic</td></tr>
<tr><td>Max/Min KWa</td></tr>
<tr><td>Max/Min KWb</td></tr>
<tr><td>Max/Min KWc</td></tr>
<tr><td>Max/Min KVAa</td></tr>
<tr><td>Max/Min KVAb</td></tr>
<tr><td>Max/Min KVAc</td></tr>
<tr><td>Min PFa</td><td rowspan="3">Min
Date:
Time:</td></tr>
<tr><td>Min PFb</td></tr>
<tr><td>Min PFc</td></tr>
<tr><td>Max VaTHD</td><td rowspan="7">Max
Date:
Time:</td></tr>
<tr><td>Max VbTHD</td></tr>
<tr><td>Max VcTHD</td></tr>
<tr><td>Max IaTHD</td></tr>
<tr><td>Max IbTHD</td></tr>
<tr><td>Max IcTHD</td></tr>
<tr><td>Max Demand</td></tr>
</table>

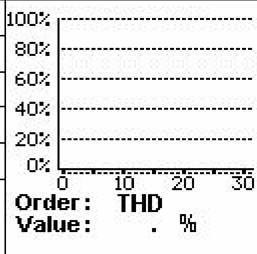
- **Last Reset**

<table>
<tr><th>Item</th><th>Setup</th></tr>
<tr><td>Current Time</td><td>Date:
Time:</td></tr>
<tr><td>Max/Min Va</td><td rowspan="12">Max
Date:
Time:

Min
Date:
Time:</td></tr>
<tr><td>Max/Min Vb</td></tr>
<tr><td>Max/Min Vc</td></tr>
<tr><td>Max/Min Ia</td></tr>
<tr><td>Max/Min Ib</td></tr>
<tr><td>Max/Min Ic</td></tr>
<tr><td>Max/Min KWa</td></tr>
<tr><td>Max/Min KWb</td></tr>
<tr><td>Max/Min KWc</td></tr>
<tr><td>Max/Min KVAa</td></tr>
<tr><td>Max/Min KVAb</td></tr>
<tr><td>Max/Min KVAc</td></tr>
<tr><td>Min PFa</td><td rowspan="3">Min
Date:
Time:</td></tr>
<tr><td>Min PFb</td></tr>
<tr><td>Min PFc</td></tr>
<tr><td>Max VaTHD</td><td rowspan="7">Max
Date:
Time:</td></tr>
<tr><td>Max VbTHD</td></tr>
<tr><td>Max VcTHD</td></tr>
<tr><td>Max IaTHD</td></tr>
<tr><td>Max IbTHD</td></tr>
<tr><td>Max IcTHD</td></tr>
<tr><td>Max Demand</td></tr>
<tr><td>Energy</td><td>del:
rec:
tot:</td></tr>
</table>

7.3.3 Harmonics



Item	Report Chart
Va Harmonics	
Vb Harmonics	
Vc Harmonics	
Ia Harmonics	
Ib Harmonics	
Ic Harmonics	

7.3.4 Current on alarm



If no current alarm is on, none will be shown. In this instrument up to eight items will be set to alarm as following：

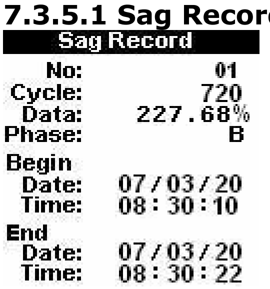
- V Unbal Alarm
- I Unbal Alarm
- THD Alarm
- Over V Alarm
- Under V Alarm
- Over I Alarm
- I Loss Alarm
- V Loss Alarm

7.3.5 Event log



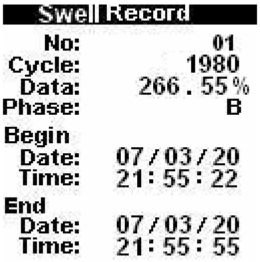
In this event log section, up to 20 latest records has been recorded.

7.3.5.1 Sag Record



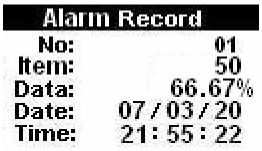
- No：to select the sag record from 1 to 20 using ◄►keys
- Cycle：sag cycles between 0-65535
- Data：sag percentage between -327.67%-327.67%
- Phase：A/B/C phase voltage
- Begin：begin date and time
- End：end date and time

7.3.5.2 Swell record



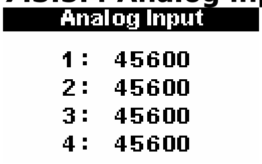
- No：to select the swell record from 1 to 20 using ◄►keys
- Cycle：swell cycles between 0-65535
- Data：swell percentage between -327.67%-327.67%
- Phase：A/B/C phase voltage
- Begin：begin date and time
- End：end date and time

7.3.5.3 Alarm Record



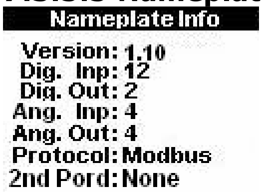
- No：to select the alarm record from 1 to 20 using ◄►keys
- Item：items can be current voltage…etc., as listed in the table of page 27
- Data：percentage
- Date：date of accruing
- Time：time of accruing

7.3.5.4 Analog input



The AI option was originally setup by entering high value and low value to correspond 4-20mA input. In this report reaction, users can observe the input data for each channel.

7.3.5.5 Nameplate Info



Chapter 8 Communication format

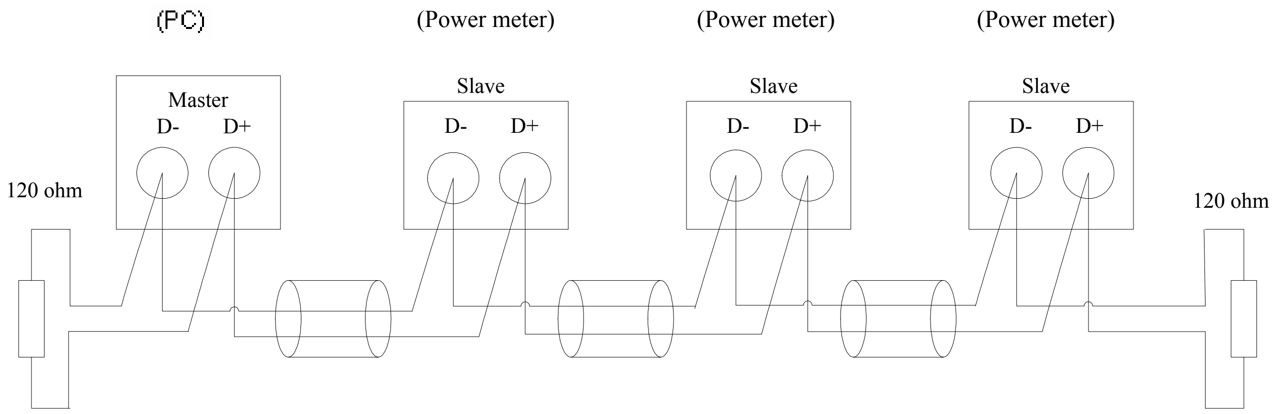
8.1 RS485

8.1.1 RS485 standard

PARAMETERS	
Mode of Operation	Differential
Number of Drivers and Receives	32 Drivers / 32 Receivers
Maximum cable length (meters)	1200
Maximum data rate (baud)	10M
Maximum common mode voltage (Volts)	12 to -7
Maximum Driver Output Levels (Loaded)	+/- 1.5
Maximum Driver Output Levels (Unloaded)	+/- 6
Drive Load (Ohms)	60 (min)
Driver Output short circuit Resistance (kohms)	150 to Gnd, 250 to -7 or 12V
Minimum receiver input Resistance (kohms)	12
Receiver sensitivity	+/- 200mv

8.1.2 Wiring for instruments communication

RS485communication must use twisted paired wire, as show in the following program. "D+" connect to one wire and "D-" to the other one



Cautions :

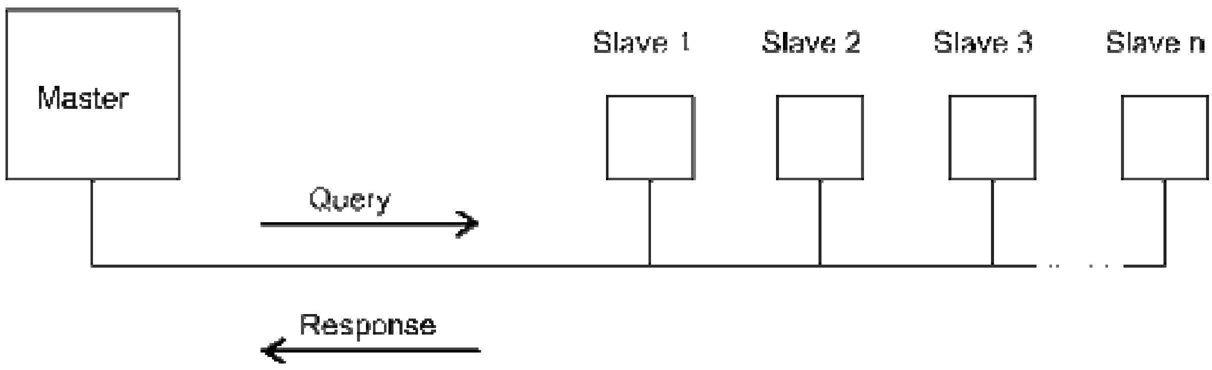
There must be no more than two wires connected to each terminal, this ensures that a "Daisy Chain" or "Straight Line" configuration is used. A "star" or a network with "Stubs(Tees)" is not recommended as reflections within the cable may result in data corruption 。

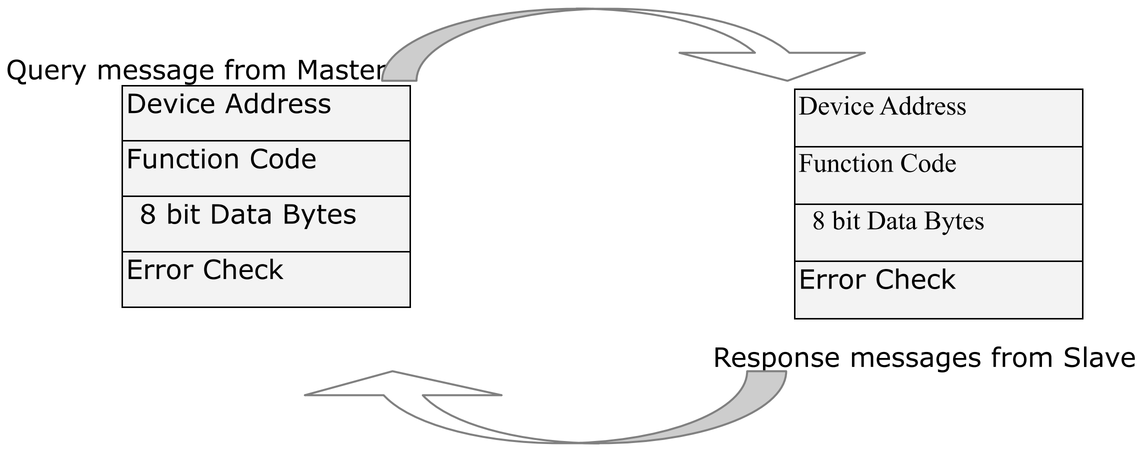
8.2 Modbus

In the start of modus communication, master will issue a “Query” to the slave. Every slaves will monitor the “Query” address, so as to “execute’ or give “response” when the address is right

8.2.1 Modbus Format

The Query-Response Cycle





8.3 Communication protocol

PD1000 uses Modus RTU as the communication protocol. The following shows Query and Response format.

Query :

Slave Address	Function Code	Start Address (Hi)	Start Address (Lo)	Number of Points (Hi)	Number of Points (Lo)	Error Check (Lo)	Error Check (Hi)

Response :

Slave Address	Function Code	Byte Count	Data (Hi)	Data (Lo)	Error Check (Lo)	Error Check (Hi)

8.4 Detail Parameters

Modbus Module #1 Holding Register : Digital Output

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Digital Output	44097	Word	UInt	bit 0 : Digital Output 1 bit 1 : Digital Output 2	0		
Digital_Output_Reserve	44098	Word	UInt				

Modbus Module #2 Holding Register : Setup Parameter

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Comm_485_BaudRate	44099	Word	UInt	0: 1200 , 1: 2400 , 2: 4800 , 3: 9600 , 4: 19200, 5:38400 6: 57600	4	bps	
Comm_485_Address	44100	Word	UInt	1-255	15		
Comm_485_StopBit	44101	Word	UInt	0:1 Stop bit, 1:2 Stop bit	0		
Comm_485_Parity	44102	Word	UInt	0:No, 1:Even, 2:Odd	0		
Reserved	44103	Word	UInt	0	0		
Ethernet_IP_0*	44104	Hi B	Byte	0-255	192		
Ethernet_IP_1*		Lo B	Byte	0-255	168		
Ethernet_IP_2*	44105	Hi B	Byte	0-255	1		
Ethernet_IP_3*		Lo B	Byte	0-255	210		
Ethernet_PortNo*	44106	Word	UInt	0:502, 1:503	0		
Subnet_Mask_0*	44107	Hi B	Byte	0-255	255		
Subnet_Mask _1*		Lo B	Byte	0-255	255		
Subnet_Mask _2*	44108	Hi B	Byte	0-255	255		
Subnet_Mask _3*		Lo B	Byte	0-255	0		
Gateway_0*	44109	Hi B	Byte	0-255	0		
Gateway_1*		Lo B	Byte	0-255	0		
Gateway_2*	44110	Hi B	Byte	0-255	0		
Gateway_3*		Lo B	Byte	0-255	0		
Mac_Address_1*	44111	Hi B	Byte	0-ffh	00		
Mac_Address_2*		Lo B	Byte	0-ffh	18		
Mac_Address_3*	44112	Hi B	Byte	0-ffh	D8		
Mac_Address_4*		Lo B	Byte	0-ffh	0		
Mac_Address_5*	44113	Hi B	Byte	0-ffh	0		
Mac_Address_6*		Lo B	Byte	0-ffh	0		
Volts_Mode	44114	Hi B	Byte	Volts Mode at present			
		Lo B	Byte	0 : 1P2W , 1 : 1P3W , 2 : 3P3W_Delta 2CT, 3 : 3P3W_Delta 3CT, 4 : 3P4W_Wye , 5 : Auto	5		
PT_Primary	44115-44116	DWord	Float	60-600000	110	Volts	
PT_Secondary	44117	Word	UInt	1-600	110	Volts	
CT_Primary	44118	Word	UInt	1-5000	1	Amp.	
CT_Secondary	44119	Word	UInt	1-5	1	Amp.	
Frequency*	44120	Word	UInt	0:50Hz, 1:60Hz	1		
Demand_Mode*	44121	Word	UInt	0:Block, 1:Rolling	0		
Number_of_Subinterval *	44122	Word	UInt	1,2,3,4,5,6,10	1		
Demand_Subinterval_ Length*	44123	Word	UInt	1,2,3,4,5,6,10,12,15,20,30,60	15	Min	
Password	44124-44125	DWord	Uint32	0xxxxxxxh	0000000		
Reserved	44126-44127	Word					
Alarm_Enable	44128	Word	UInt	0 : disable , 1 : enable	0		
SAG_Limit	44129	Word	UInt	Range : 80% - 100%	100	%	For Sag & UnderVoltag

							e alarm
SWELL_Limit	44130	Word	UInt	Range：100% - 120%	100	%	For Swell & OverVoltage alarm
Reference_Primary_Voltage	44131 44132	DWord	Float	60-600000	110	Volts	For Sag/Swell & Under/Over Voltage
Voltage_Unbal_Limit	44133	Word	UInt	Range：0% - 10%	10	%	For Voltage unbalance alarm
Current_Unbal_Limit	44134	Word	UInt	Range：0% - 10%	10	%	For Current unbalance alarm
THD_Limit*	44135	Word	UInt	Range：0% - 50%	50	%	For THD alarm
Over_Current_Phase_Limit	44136	Word	UInt	0-9999	9999	Amp.	For Over Current Phase alarm
Over_Current_Neutral_Limit	44137	Word	UInt	0-9999	9999	Amp.	For Over Current Neutral alarm
Current_Loss_Limit	44138	Word	UInt	0-5000	0	Amp.	For Phase Loss-Current alarm
Voltage_Loss_Limit	44139-44140	DWord	Float	0-600000	0	Volts	For Phase Loss-Voltage alarm
Voltage_Unbal_Clear	44141	Word	UInt	Range：0% - 10%	1	%	For Voltage unbalance alarm clear
Current_Unbal_ Clear	44142	Word	UInt	Range：0% - 10%	1	%	For Current unbalance alarm clear
THD_ Clear	44143	Word	UInt	Range：0% - 50%	1	%	For THD alarm clear
Over_Current_Phase_ Clear	44144	Word	UInt	0-9999	0	Amp.	For Over Current Phase alarm clear
Over_Current_Neutral _ Clear	44145	Word	UInt	0-9999	0	Amp.	For Over Current Neutral alarm clear
Current_Loss_ Clear	44146	Word	UInt	0-5000	0	Amp.	For Phase Loss-Current alarm clear
Voltage_Loss_ Clear	44147-44148	DWord	Float	0-600000	0	Volts	For Phase Loss-Voltage alarm clear
DO1_Select_Item	44149	Word	Uint	0：None 1：Voltage unbalance alarm 2：Current unbalance alarm 3：THD alarm* 4：Over Voltage alarm 5：Under Voltage alarm 6：Over Current alarm 7：Current Loss alarm 8：Voltage Loss alarm	0		
DO2_Select_Item	44150	Hi B	Byte	0：None，1：kWh 2：kvarh，3：kVAh	0		
DO2_Select_Kh		Lo B	Byte	0：1Wh/pulse， 1：10Wh/pulse	0		
AO1_Select_Phase	44151	Hi B	Byte	0：None，1：A phase，2：B phase，3：C phase， 4：Total	0		

AO1_Select_ Item		Lo B	Byte	0 : V , 1 : I , 2 : KW , 3 : Kvar , 4 : KVA	0		
AO2_Select_Phase	44152	Hi B	Byte	0 : None , 1 : A phase , 2 : B phase , 3 : C 相 , 4 : Total	0		
AO2_Select_ Item		Lo B	Byte	0 : V , 1 : I , 2 : kW , 3 : kvar , 4 : kVA	0		
AO3_Select_Phase	44153	Hi B	Byte	0 : None , 1 : A phase , 2 : B phase , 3 : C phase , 4 : Total	0		
AO3_Select_ Item		Lo B	Byte	0 : V , 1 : I , 2 : kW , 3 : kvar , 4 : kVA	0		
AO4_Select_Phase	44154	Hi B	Byte	0 : None , 1 : A phase , 2 : B phase , 3 : C phase , 4 : Total	0		
AO4_Select_ Item		Lo B	Byte	0 : V , 1 : I , 2 : kW , 3 : kvar , 4 : kVA	0		
Reserved	44155	Word	UInt		0		
Display_Auto_Scroll	44156	Hi B	Byte	0 - 6 sec	3		
Display_BK_Timeout		Lo B	Byte	1 - 5 min	1		
Runtime_Screen_Set	44157	Word	UInt	Bit=0 : Disable Bit=1 : Enable bit 0 : Phase Voltage bit 1 : Line Voltage bit 2 : Line Current bit 3 : Active Power bit 4 : Apparent Power bit 5 : Reactive Power bit 6 : Power Factor bit 7 : Energy bit 8 : Demand* bit 9 : Status	3ff		
Reset_Mode*	44158	Hi B	Byte	0：Manual, 1：Auto	0		
Reset_Date*		Lo B	Byte	1~31	1		
Reserved	44159	Word	UInt		0		
AI1_Eng_High	44160	Word	UInt	0~65535	65535		
AI1_Eng_Low	44161	Word	UInt	0~65535	0		
AI2_Eng_High	44162	Word	UInt	0~65535	65535		
AI2_Eng_Low	44163	Word	UInt	0~65535	0		
AI3_Eng_High	44164	Word	UInt	0~65535	65535		
AI3_Eng_Low	44165	Word	UInt	0~65535	0		
AI4_Eng_High	44166	Word	UInt	0~65535	65535		
AI4_Eng_Low	44167	Word	UInt	0~65535	0		
Reserved	44168	Word	UInt		0		
Reserved	44169	Word	UInt		0		
AO1_Set_Value	44170	Word	UInt	0~65535	0		
AO2_Set_Value	44171	Word	UInt	0~65535	0		
AO3_Set_Value	44172	Word	UInt	0~65535	0		
AO4_Set_Value	44173	Word	UInt	0~65535	0		

Modbus Module #3 Holding Register : Realtime Clock

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Year	44177	Word	BCD				
Month	44178	Word	BCD				
Date	44179	Word	BCD				
Hour	44180	Word	BCD				
Min	44181	Word	BCD				
Second	44182	Word	BCD				

Modbus Module #4 Holding Register : Clear Function

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Reset_ Daily	44193	Word	UInt	0x5aa5	0		0x5aa5: clear
Reset_ Energy	44194	Word	Uint	0x5aa5	0		0x5aa5: clear
Reset _Sag _Record	44195	Word	Uint	0x5aa5	0		0x5aa5: clear
Reset_Swell_Record	44196	Word	Uint	0x5aa5	0		0x5aa5: clear
Reset_Sag_Swell_Record	44197	Word	Uint	0x5aa5	0		0x5aa5: clear

Reset_Alarm_Record	44198	Word	Uint	0x5aa5	0		0x5aa5: clear
Reset_to_Default	44199	Word	Uint	0x5aa5	0		0x5aa5: clear
Reset_All	44200	Word	Uint	0x5aa5	0		0x5aa5: clear
Reset_Demand	44201	Word	Uint	0x5aa5	0		0x5aa5: clear
Period_Reset	44202	Word	Uint	0x5aa5	0		0x5aa5: clear

Modbus Module #5 Holding Register : Alarm Counter

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Alarm_New_Counter	44209	Word	Uint	0-20			Counter number new after last reading (up to 20 data)
Sag_New_Counter	44210	Word	Uint	0-20			Counter number new after last reading (up to 20 data)
Swell_New_Counter	44211	Word	Uint	0-20			Counter number new after last reading (up to 20 data)
Alarm_Total_Counter	44212	Word	Uint	0-20			Current total accumulates(up to 20 data)
Sag_Total_Counter	44213	Word	Uint	0-20			Current total accumulates(up to 20 data)
Swell_Total_Counter	44214	Word	Uint	0-20			Current total accumulates(up to 20 data)

Modbus Module #6 Input Register : Digital Output

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Digital Output	34097	Word	UInt	bit 0 : Digital Output 1 bit 1 : Digital Output 2	0		
Digital_Output_Reserve	34098	Word	UInt				

Modbus Module #7 Input Register : Digital Intput

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Digital Input	34099	Word	UInt	bit 0 : Digital Input 1 bit 1 : Digital Input 2 bit 2 : Digital Input 3 bit 3 : Digital Input 4 bit 4 : Digital Input 5 bit 5 : Digital Input 6 bit 6 : Digital Input 7 bit 7 : Digital Input 8 bit 8 : Digital Input 9 bit 9 : Digital Input 10 bit 10 : Digital Input 11 bit 11 : Digital Input 12			
Digital_Input_Reserve	34100	Word	UInt				

Modbus Module #8 Input Register : Alarm Counter

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Alarm_New_Counter	34101	Word	UInt	0-20			Counter number new after last reading (up to 20 data)
Sag_New_Counter	34102	Word	UInt	0-20			Counter number new after last reading (up to 20 data)
Swell_New_Counter	34103	Word	UInt	0-20			Counter number new after last reading (up to 20 data)
Alarm_Total_Counter	34104	Word	UInt	0-20			Current total accumulates(up to 20 data)
Sag_Total_Counter	34105	Word	UInt	0-20			Current total accumulates(up to 20 data)
Swell_Total_Counter	34106	Word	UInt	0-20			Current total accumulates(up to 20 data)

Modbus Module #9 Input Register : Realtime Data Voltage, Current, Frequency

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Vln_a	34107-34108	DWord	Float	Primary Voltage		Volts	with Runtime display

Vln_b	34109-34110	DWord	Float	Primary Voltage		Volts	with Runtime display
Vln_c	34111-34112	DWord	Float	Primary Voltage		Volts	with Runtime display
Vln_avg	34113-34114	DWord	Float	Primary Voltage		Volts	with Runtime display
Vll_ab	34115-34116	DWord	Float	Primary Voltage		Volts	with Runtime display
Vll_bc	34117-34118	DWord	Float	Primary Voltage		Volts	with Runtime display
Vll_ca	34119-34120	DWord	Float	Primary Voltage		Volts	with Runtime display
Vll_avg	34121-34122	DWord	Float	Primary Voltage		Volts	with Runtime display
I_a	34123-34124	DWord	Float	Primary Current		Amp.	with Runtime display
I_b	34125-34126	DWord	Float	Primary Current		Amp.	with Runtime display
I_c	34127-34128	DWord	Float	Primary Current		Amp.	with Runtime display
I_avg	34129-34130	DWord	Float	Primary Current		Amp.	with Runtime display
I_n	34131-34132	DWord	Float	Primary Current		Amp.	with Runtime display
Freq	34133-34134	DWord	Float			Hz	with Runtime display

Modbus Module #10 Input Register : Realtime Data Power Result

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
KW_a	34135-34136	DWord	Float				with Runtime display
KW_b	34137-34138	DWord	Float				with Runtime display
KW_c	34139-34140	DWord	Float				with Runtime display
KW_tot	34141-34142	DWord	Float				with Runtime display
KVAR_a	34143-34144	DWord	Float				with Runtime display
KVAR_b	34145-34146	DWord	Float				with Runtime display
KVAR_c	34147-34148	DWord	Float				with Runtime display
KVAR_tot	34149-34150	DWord	Float				with Runtime display
KVA_a	34151-34152	DWord	Float				with Runtime display
KVA_b	34153-34154	DWord	Float				with Runtime display
KVA_c	34155-34156	DWord	Float				with Runtime display
KVA_tot	34157-34158	DWord	Float				with Runtime display

Modbus Module #11 Input Register : Realtime Data Power Factor & Phase Angle

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
PF_signed_a	34159-34160	DWord	Float				with Runtime display
PF_signed_b	34161-34162	DWord	Float				with Runtime display
PF_signed_c	34163-34164	DWord	Float				with Runtime display
PF_signed_avg	34165-34166	DWord	Float				with Runtime display
PhaseAngle_V_a	34167-34168	DWord	Float				
PhaseAngle_V_b	34169-34170	DWord	Float				

PhaseAngle_V_c	34171-34172	DWord	Float				
PhaseAngle_I_a	34173-34174	DWord	Float				
PhaseAngle_I_b	34175-34176	DWord	Float				
PhaseAngle_I_c	34177-34178	DWord	Float				
Reserved	34179-34180	DWord	Float				
Reserved	34181-34182	DWord	Float				
Reserved	34183-34184	DWord	Float				

Modbus Module #12 Input Register : Realtime Data Energy

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
KWH_del	34185-34186	DWord	Float				with Runtime display
KWH_rec	34187-34188	DWord	Float				with Runtime display
KWH_tot	34189-34190	DWord	Float				with Runtime display
KWH_net	34191-34192	DWord	Float				
KVARH_del (+ lagging)	34193-34194	DWord	Float				with Runtime display
KVARH_rec (- leading)	34195-34196	DWord	Float				with Runtime display
KVARH_tot	34197-34198	DWord	Float				with Runtime display
KVARH_net	34199-34200	DWord	Float				
KVAH	34201-34202	DWord	Float				

Modbus Module #13 Input Register : Realtime data Demand

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Demand_KW	34203-34204	DWord	Float				
Demand_Remain_Time	34205	Word	UInt			sec	

Modbus Module #14 Input Register : AI Result

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
AI1 Value	34206	Word	UInt	0~65535			
AI2 Value	34207	Word	UInt	0~65535			
AI3 Value	34208	Word	UInt	0~65535			
AI4 Value	34209	Word	UInt	0~65535			

Modbus Module #15 Input Register : Daily Report This Day Max/Min

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
KWH_del_DT	34609-34610	DWord	Float				
KWH_rec_DT	34611-34612	DWord	Float				
KWH_tot_DT	34613-34614	DWord	Float				
KW_tot_max_DT	34615-34616	DWord	Float				
KW_tot_max_DT_Year	34617	Word	BCD	00-99			

KW_tot_max_DT_Month	34618	Word	BCD	1-12			
KW_tot_max_DT_Date	34619	Word	BCD	1-31			
KW_tot_max_DT_Hour	34620	Word	BCD	0-23			
KW_tot_max_DT_Min	34621	Word	BCD	0-59			
KW_tot_max_DT_Second	34622	Word	BCD	0-59			
KW_tot_min_DT	34623-34624	DWord	Float				
KW_tot_min_DT_Year	34625	Word	BCD	00-99			
KW_tot_min_DT_Month	34626	Word	BCD	1-12			
KW_tot_min_DT_Date	34627	Word	BCD	1-31			
KW_tot_min_DT_Hour	34628	Word	BCD	0-23			
KW_tot_min_DT_Min	34629	Word	BCD	0-59			
KW_tot_min_DT_Second	34630	Word	BCD	0-59			
Vavg_max_DT	34631-34632	DWord	Float				
Vavg_max_DT_Year	34633	Word	BCD	00-99			
Vavg_max_DT_Month	34634	Word	BCD	1-12			
Vavg_max_DT_Date	34635	Word	BCD	1-31			
Vavg_max_DT_Hour	34636	Word	BCD	0-23			
Vavg_max_DT_Min	34637	Word	BCD	0-59			
Vavg_max_DT_Second	34638	Word	BCD	0-59			
Vavg_min_DT	34639-34640	DWord	Float				
Vavg_min_DT_Year	34641	Word	BCD	00-99			
Vavg_min_DT_Month	34642	Word	BCD	1-12			
Vavg_min_DT_Date	34643	Word	BCD	1-31			
Vavg_min_DT_Hour	34644	Word	BCD	0-23			
Vavg_min_DT_Min	34645	Word	BCD	0-59			
Vavg_min_DT_Second	34646	Word	BCD	0-59			
Iavg_max_DT	34647-34648	DWord	Float				
Iavg_max_DT_Year	34649	Word	BCD	00-99			
Iavg_max_DT_Month	34650	Word	BCD	1-12			
Iavg_max_DT_Date	34651	Word	BCD	1-31			
Iavg_max_DT_Hour	34652	Word	BCD	0-23			
Iavg_max_DT_Min	34653	Word	BCD	0-59			
Iavg_max_DT_Second	34654	Word	BCD	0-59			
Iavg_min_DT	34655-34656	DWord	Float				
Iavg_min_DT_Year	34657	Word	BCD	00-99			
Iavg_min_DT_Month	34658	Word	BCD	1-12			
Iavg_min_DT_Date	34659	Word	BCD	1-31			
Iavg_min_DT_Hour	34660	Word	BCD	0-23			
Iavg_min_DT_Min	34661	Word	BCD	0-59			
Iavg_min_DT_Second	34662	Word	BCD	0-59			
Demand_max_DT	34663-34664	DWord	Float				
Demand_max_DT_Year	34665	Word	BCD	00-99			
Demand_max_DT_Month	34666	Word	BCD	1-12			
Demand_max_DT_Date	34667	Word	BCD	1-31			
Demand_max_DT_Hour	34668	Word	BCD	0-23			
Demand_max_DT_Min	34669	Word	BCD	0-59			
Demand_max_DT_Second	34670	Word	BCD	0-59			

Modbus Module #16 Input Register : Daily Report Yesterday Max/Min

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
KWH_del_DY	34671-34672	DWord	Float				
KWH_rec_DY	34673-34674	DWord	Float				
KWH_tot_DY	34675-34676	DWord	Float				
KW_tot_max_DY	34677-34678	DWord	Float				
KW_tot_max_DY_Year	34679	Word	BCD	00-99			
KW_tot_max_DY_Month	34680	Word	BCD	1-12			
KW_tot_max_DY_Date	34681	Word	BCD	1-31			
KW_tot_max_DY_Hour	34682	Word	BCD	0-23			
KW_tot_max_DY_Min	34683	Word	BCD	0-59			

KW_tot_max_DY_Second	34684	Word	BCD	0-59			
KW_tot_min_DY	34685-34686	DWord	Float				
KW_tot_min_DY_Year	34687	Word	BCD	00-99			
KW_tot_min_DY_Month	34688	Word	BCD	1-12			
KW_tot_min_DY_Date	34689	Word	BCD	1-31			
KW_tot_min_DY_Hour	34690	Word	BCD	0-23			
KW_tot_min_DY_Min	34691	Word	BCD	0-59			
KW_tot_min_DY_Second	34692	Word	BCD	0-59			
Vavg_max_DY	34693-34694	DWord	Float				
Vavg_max_DY_Year	34695	Word	BCD	00-99			
Vavg_max_DY_Month	34696	Word	BCD	1-12			
Vavg_max_DY_Date	34697	Word	BCD	1-31			
Vavg_max_DY_Hour	34698	Word	BCD	0-23			
Vavg_max_DY_Min	34699	Word	BCD	0-59			
Vavg_max_DY_Second	34700	Word	BCD	0-59			
Vavg_min_DY	34701-34702	DWord	Float				
Vavg_min_DY_Year	34703	Word	BCD	00-99			
Vavg_min_DY_Month	34704	Word	BCD	1-12			
Vavg_min_DY_Date	34705	Word	BCD	1-31			
Vavg_min_DY_Hour	34706	Word	BCD	0-23			
Vavg_min_DY_Min	34707	Word	BCD	0-59			
Vavg_min_DY_Second	34708	Word	BCD	0-59			
Iavg_max_DY	34709-34710	DWord	Float				
Iavg_max_DY_Year	34711	Word	BCD	00-99			
Iavg_max_DY_Month	34712	Word	BCD	1-12			
Iavg_max_DY_Date	34713	Word	BCD	1-31			
Iavg_max_DY_Hour	34714	Word	BCD	0-23			
Iavg_max_DY_Min	34715	Word	BCD	0-59			
Iavg_max_DY_Second	34716	Word	BCD	0-59			
Iavg_min_DY	34717-34718	DWord	Float				
Iavg_min_DY_Year	34719	Word	BCD	00-99			
Iavg_min_DY_Month	34720	Word	BCD	1-12			
Iavg_min_DY_Date	34721	Word	BCD	1-31			
Iavg_min_DY_Hour	34722	Word	BCD	0-23			
Iavg_min_DY_Min	34723	Word	BCD	0-59			
Iavg_min_DY_Second	34724	Word	BCD	0-59			
Demand_max_DY	34725-34726	DWord	Float				
Demand_max_DY_Year	34727	Word	BCD	00-99			
Demand_max_DY_Month	34728	Word	BCD	1-12			
Demand_max_DY_Date	34729	Word	BCD	1-31			
Demand_max_DY_Hour	34730	Word	BCD	0-23			
Demand_max_DY_Min	34731	Word	BCD	0-59			
Demand_max_DY_Second	34732	Word	BCD	0-59			

Modbus Module #17 Input Register : Diagnostic This Period Max/Min

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Va_max_TP	34733-34734	DWord	Float				
Va_max_TP_Year	34735	Word	BCD	00-99			
Va_max_TP_Month	34736	Word	BCD	1-12			
Va_max_TP_Date	34737	Word	BCD	1-31			
Va_max_TP_Hour	34738	Word	BCD	0-23			
Va_max_TP_Min	34739	Word	BCD	0-59			
Va_max_TP_Second	34740	Word	BCD	0-59			
Va_min_TP	34741-34742	DWord	Float				
Va_min_TP_Year	34743	Word	BCD	00-99			
Va_min_TP_Month	34744	Word	BCD	1-12			
Va_min_TP_Date	34745	Word	BCD	1-31			
Va_min_TP_Hour	34746	Word	BCD	0-23			
Va_min_TP_Min	34747	Word	BCD	0-59			
Va_min_TP_Second	34748	Word	BCD	0-59			
Vb_max_TP	34749-	DWord	Float				

	34750						
Vb_max_TP_Year	34751	Word	BCD	00-99			
Vb_max_TP_Month	34752	Word	BCD	1-12			
Vb_max_TP_Date	34753	Word	BCD	1-31			
Vb_max_TP_Hour	34754	Word	BCD	0-23			
Vb_max_TP_Min	34755	Word	BCD	0-59			
Vb_max_TP_Second	34756	Word	BCD	0-59			
Vb_min_TP	34757-34758	DWord	Float				
Vb_min_TP_Year	34759	Word	BCD	00-99			
Vb_min_TP_Month	34760	Word	BCD	1-12			
Vb_min_TP_Date	34761	Word	BCD	1-31			
Vb_min_TP_Hour	34762	Word	BCD	0-23			
Vb_min_TP_Min	34763	Word	BCD	0-59			
Vb_min_TP_Second	34764	Word	BCD	0-59			
Vc_max_TP	34765-34766	DWord	Float				
Vc_max_TP_Year	34767	Word	BCD	00-99			
Vc_max_TP_Month	34768	Word	BCD	1-12			
Vc_max_TP_Date	34769	Word	BCD	1-31			
Vc_max_TP_Hour	34770	Word	BCD	0-23			
Vc_max_TP_Min	34771	Word	BCD	0-59			
Vc_max_TP_Second	34772	Word	BCD	0-59			
Vc_min_TP	34773-34774	DWord	Float				
Vc_min_TP_Year	34775	Word	BCD	00-99			
Vc_min_TP_Month	34776	Word	BCD	1-12			
Vc_min_TP_Date	34777	Word	BCD	1-31			
Vc_min_TP_Hour	34778	Word	BCD	0-23			
Vc_min_TP_Min	34779	Word	BCD	0-59			
Vc_min_TP_Second	34780	Word	BCD	0-59			
Ia_max_TP	34781-34782	DWord	Float				
Ia_max_TP_Year	34783	Word	BCD	00-99			
Ia_max_TP_Month	34784	Word	BCD	1-12			
Ia_max_TP_Date	34785	Word	BCD	1-31			
Ia_max_TP_Hour	34786	Word	BCD	0-23			
Ia_max_TP_Min	34787	Word	BCD	0-59			
Ia_max_TP_Second	34788	Word	BCD	0-59			
Ia_min_TP	34789-34790	DWord	Float				
Ia_min_TP_Year	34791	Word	BCD	00-99			
Ia_min_TP_Month	34792	Word	BCD	1-12			
Ia_min_TP_Date	34793	Word	BCD	1-31			
Ia_min_TP_Hour	34794	Word	BCD	0-23			
Ia_min_TP_Min	34795	Word	BCD	0-59			
Ia_min_TP_Second	34796	Word	BCD	0-59			
Ib_max_TP	34797-34798	DWord	Float				
Ib_max_TP_Year	34799	Word	BCD	00-99			
Ib_max_TP_Month	34800	Word	BCD	1-12			
Ib_max_TP_Date	34801	Word	BCD	1-31			
Ib_max_TP_Hour	34802	Word	BCD	0-23			
Ib_max_TP_Min	34803	Word	BCD	0-59			
Ib_max_TP_Second	34804	Word	BCD	0-59			
Ib_min_TP	34805-34806	DWord	Float				
Ib_min_TP_Year	34807	Word	BCD	00-99			
Ib_min_TP_Month	34808	Word	BCD	1-12			
Ib_min_TP_Date	34809	Word	BCD	1-31			
Ib_min_TP_Hour	34810	Word	BCD	0-23			
Ib_min_TP_Min	34811	Word	BCD	0-59			
Ib_min_TP_Second	34812	Word	BCD	0-59			
Ic_max_TP	34813-34814	DWord	Float				
Ic_max_TP_Year	34815	Word	BCD	00-99			
Ic_max_TP_Month	34816	Word	BCD	1-12			
Ic_max_TP_Date	34817	Word	BCD	1-31			
Ic_max_TP_Hour	34818	Word	BCD	0-23			
Ic_max_TP_Min	34819	Word	BCD	0-59			
Ic_max_TP_Second	34820	Word	BCD	0-59			

Ic_min_TP	34821-34822	DWord	Float				
Ic_min_TP_Year	34823	Word	BCD	00-99			
Ic_min_TP_Month	34824	Word	BCD	1-12			
Ic_min_TP_Date	34825	Word	BCD	1-31			
Ic_min_TP_Hour	34826	Word	BCD	0-23			
Ic_min_TP_Min	34827	Word	BCD	0-59			
Ic_min_TP_Second	34828	Word	BCD	0-59			
KWa_max_TP	34829-34830	DWord	Float				
KWa_max_TP_Year	34831	Word	BCD	00-99			
KWa_max_TP_Month	34832	Word	BCD	1-12			
KWa_max_TP_Date	34833	Word	BCD	1-31			
KWa_max_TP_Hour	34834	Word	BCD	0-23			
KWa_max_TP_Min	34835	Word	BCD	0-59			
KWa_max_TP_Second	34836	Word	BCD	0-59			
KWa_min_TP	34837-34838	DWord	Float				
KWa_min_TP_Date	34839	Word	BCD	00-99			
KWa_min_TP_Month	34840	Word	BCD	1-12			
KWa_min_TP_Date	34841	Word	BCD	1-31			
KWa_min_TP_Hour	34842	Word	BCD	0-23			
KWa_min_TP_Min	34843	Word	BCD	0-59			
KWa_min_TP_Second	34844	Word	BCD	0-59			
KWb_max_TP	34845-34846	DWord	Float				
KWb_max_TP_Year	34847	Word	BCD	00-99			
KWb_max_TP_Month	34848	Word	BCD	1-12			
KWb_max_TP_Date	34849	Word	BCD	1-31			
KWb_max_TP_Hour	34850	Word	BCD	0-23			
KWb_max_TP_Min	34851	Word	BCD	0-59			
KWb_max_TP_Second	34852	Word	BCD	0-59			
KWb_min_TP	34853-34854	DWord	Float				
KWb_min_TP_Year	34855	Word	BCD	00-99			
KWb_min_TP_Month	34856	Word	BCD	1-12			
KWb_min_TP_Date	34857	Word	BCD	1-31			
KWb_min_TP_Hour	34858	Word	BCD	0-23			
KWb_min_TP_Min	34859	Word	BCD	0-59			
KWb_min_TP_Second	34860	Word	BCD	0-59			
KWc_max_TP	34861-34862	DWord	Float				
KWc_max_TP_Year	34863	Word	BCD	00-99			
KWc_max_TP_Month	34864	Word	BCD	1-12			
KWc_max_TP_Date	34865	Word	BCD	1-31			
KWc_max_TP_Hour	34866	Word	BCD	0-23			
KWc_max_TP_Min	34867	Word	BCD	0-59			
KWc_max_TP_Second	34868	Word	BCD	0-59			
KWc_min_TP	34869-34870	DWord	Float				
KWc_min_TP_Year	34871	Word	BCD	00-99			
KWc_min_TP_Month	34872	Word	BCD	1-12			
KWc_min_TP_Date	34873	Word	BCD	1-31			
KWc_min_TP_Hour	34874	Word	BCD	0-23			
KWc_min_TP_Min	34875	Word	BCD	0-59			
KWc_min_TP_Second	34876	Word	BCD	0-59			
KVAa_max_TP	34877-34878	DWord	Float				
KVAa_max_TP_Year	34879	Word	BCD	00-99			
KVAa_max_TP_Month	34880	Word	BCD	1-12			
KVAa_max_TP_Date	34881	Word	BCD	1-31			
KVAa_max_TP_Hour	34882	Word	BCD	0-23			
KVAa_max_TP_Min	34883	Word	BCD	0-59			
KVAa_max_TP_Second	34884	Word	BCD	0-59			
KVAa_min_TP	34885-34886	DWord	Float				
KVAa_min_TP_Year	34887	Word	BCD	00-99			
KVAa_min_TP_Month	34888	Word	BCD	1-12			
KVAa_min_TP_Date	34889	Word	BCD	1-31			
KVAa_min_TP_Hour	34890	Word	BCD	0-23			
KVAa_min_TP_Min	34891	Word	BCD	0-59			

KVAa_min_TP_Second	34892	Word	BCD	0-59			
KVAb_max_TP	34893-34894	DWord	Float				
KVAb_max_TP_Year	34895	Word	BCD	00-99			
KVAb_max_TP_Month	34896	Word	BCD	1-12			
KVAb_max_TP_Date	34897	Word	BCD	1-31			
KVAb_max_TP_Hour	34898	Word	BCD	0-23			
KVAb_max_TP_Min	34899	Word	BCD	0-59			
KVAb_max_TP_Second	34900	Word	BCD	0-59			
KVAb_min_TP	34901-34902	DWord	Float				
KVAb_min_TP_Year	34903	Word	BCD	00-99			
KVAb_min_TP_Month	34904	Word	BCD	1-12			
KVAb_min_TP_Date	34905	Word	BCD	1-31			
KVAb_min_TP_Hour	34906	Word	BCD	0-23			
KVAb_min_TP_Min	34907	Word	BCD	0-59			
KVAb_min_TP_Second	34908	Word	BCD	0-59			
KVAc_max_TP	34909-34910	DWord	Float				
KVAc_max_TP_Year	34911	Word	BCD	00-99			
KVAc_max_TP_Month	34912	Word	BCD	1-12			
KVAc_max_TP_Date	34913	Word	BCD	1-31			
KVAc_max_TP_Hour	34914	Word	BCD	0-23			
KVAc_max_TP_Min	34915	Word	BCD	0-59			
KVAc_max_TP_Second	34916	Word	BCD	0-59			
KVAc_min_TP	34917-34918	DWord	Float				
KVAc_min_TP_Year	34919	Word	BCD	00-99			
KVAc_min_TP_Month	34920	Word	BCD	1-12			
KVAc_min_TP_Date	34921	Word	BCD	1-31			
KVAc_min_TP_Hour	34922	Word	BCD	0-23			
KVAc_min_TP_Min	34923	Word	BCD	0-59			
KVAc_min_TP_Second	34924	Word	BCD	0-59			
PFa_min_TP	34925-34926	DWord	Float				
PFa_min_TP_Year	34927	Word	BCD	00-99			
PFa_min_TP_Month	34928	Word	BCD	1-12			
PFa_min_TP_Date	34928	Word	BCD	1-31			
PFa_min_TP_Hour	34930	Word	BCD	0-23			
PFa_min_TP_Min	34931	Word	BCD	0-59			
PFa_min_TP_Second	34932	Word	BCD	0-59			
PFb_min_TP	34933-34934	DWord	Float				
PFb_min_TP_Year	34935	Word	BCD	00-99			
PFb_min_TP_Month	34935	Word	BCD	1-12			
PFb_min_TP_Date	34937	Word	BCD	1-31			
PFb_min_TP_Hour	34938	Word	BCD	0-23			
PFb_min_TP_Min	34939	Word	BCD	0-59			
PFb_min_TP_Second	34940	Word	BCD	0-59			
PFc_min_TP	34941-34942	DWord	Float				
PFc_min_TP_Year	34943	Word	BCD	00-99			
PFc_min_TP_Month	34944	Word	BCD	1-12			
PFc_min_TP_Date	34945	Word	BCD	1-31			
PFc_min_TP_Hour	34946	Word	BCD	0-23			
PFc_min_TP_Min	34947	Word	BCD	0-59			
PFc_min_TP_Second	34948	Word	BCD	0-59			
VaTHD_max_TP	34949-34950	DWord	Float				
VaTHD_max_TP_Year	34951	Word	BCD	00-99			
VaTHD_max_TP_Month	34952	Word	BCD	1-12			
VaTHD_max_TP_Date	34953	Word	BCD	1-31			
VaTHD_max_TP_Hour	34954	Word	BCD	0-23			
VaTHD_max_TP_Min	34955	Word	BCD	0-59			
VaTHD_max_TP_Second	34956	Word	BCD	0-59			
VbTHD_max_TP	34957-34958	DWord	Float				
VbTHD_max_TP_Year	34959	Word	BCD	00-99			
VbTHD_max_TP_Month	34960	Word	BCD	1-12			
VbTHD_max_TP_Date	34961	Word	BCD	1-31			
VbTHD_max_TP_Hour	34962	Word	BCD	0-23			

VbTHD_max_TP_Min	34963	Word	BCD	0-59			
VbTHD_max_TP_Second	34964	Word	BCD	0-59			
VcTHD_max_TP	34965-34966	DWord	Float				
VcTHD_max_TP_Year	34967	Word	BCD	00-99			
VcTHD_max_TP_Month	34968	Word	BCD	1-12			
VcTHD_max_TP_Date	34969	Word	BCD	1-31			
VcTHD_max_TP_Hour	34970	Word	BCD	0-23			
VcTHD_max_TP_Min	34971	Word	BCD	0-59			
VcTHD_max_TP_Second	34972	Word	BCD	0-59			
IaTHD_max_TP	34973-34974	DWord	Float				
IaTHD_max_TP_Year	34975	Word	BCD	00-99			
IaTHD_max_TP_Month	34976	Word	BCD	1-12			
IaTHD_max_TP_Date	34977	Word	BCD	1-31			
IaTHD_max_TP_Hour	34978	Word	BCD	0-23			
IaTHD_max_TP_Min	34979	Word	BCD	0-59			
IaTHD_max_TP_Second	34980	Word	BCD	0-59			
IbTHD_max_TP	34981-34982	DWord	Float				
IbTHD_max_TP_Year	34983	Word	BCD	00-99			
IbTHD_max_TP_Month	34984	Word	BCD	1-12			
IbTHD_max_TP_Date	34985	Word	BCD	1-31			
IbTHD_max_TP_Hour	34986	Word	BCD	0-23			
IbTHD_max_TP_Min	34987	Word	BCD	0-59			
IbTHD_max_TP_Second	34988	Word	BCD	0-59			
IcTHD_max_TP	34989-34990	DWord	Float				
IcTHD_max_TP_Year	34991	Word	BCD	00-99			
IcTHD_max_TP_Month	34992	Word	BCD	1-12			
IcTHD_max_TP_Date	34993	Word	BCD	1-31			
IcTHD_max_TP_Hour	34994	Word	BCD	0-23			
IcTHD_max_TP_Min	34995	Word	BCD	0-59			
IcTHD_max_TP_Second	34996	Word	BCD	0-59			
Demand_max_TP	34997-34998	DWord	Float				
Demand_max_TP_Year	34999	Word	BCD	2000-2099			
Demand_max_TP_Month	35000	Word	BCD	1-12			
Demand_max_TP_Date	35001	Word	BCD	1-31			
Demand_max_TP_Hour	35002	Word	BCD	0-23			
Demand_max_TP_Min	35003	Word	BCD	0-59			
Demand_max_TP_Second	35004	Word	BCD	0-59			

Modbus Module #18 Input Register : Diagnostic Last Reset Max/Min

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
LR_Year	35005	Word	BCD	00-99			
LR_Month	35006	Word	BCD	1-12			
LR_Date	35007	Word	BCD	1-31			
LR_Hour	35008	Word	BCD	0-23			
LR_Min	3509	Word	BCD	0-59			
LR_Second	35010	Word	BCD	0-59			
Va_max_LR	35011-35012	DWord	Float				
Va_max_LR_Year	35013	Word	BCD	00-99			
Va_max_LR_Month	35014	Word	BCD	1-12			
Va_max_LR_Date	35015	Word	BCD	1-31			
Va_max_LR_Hour	35016	Word	BCD	0-23			
Va_max_LR_Min	35017	Word	BCD	0-59			
Va_max_LR_Second	35018	Word	BCD	0-59			
Va_min_LR	35019-35020	DWord	Float				
Va_min_LR_Year	35021	Word	BCD	00-99			
Va_min_LR_Month	35022	Word	BCD	1-12			
Va_min_LR_Date	35023	Word	BCD	1-31			
Va_min_LR_Hour	35024	Word	BCD	0-23			
Va_min_LR_Min	35025	Word	BCD	0-59			
Va_min_LR_Second	35026	Word	BCD	0-59			
Vb_max_LR	35027-35028	DWord	Float				

Vb_max_LR_Year	35029	Word	BCD	00-99			
Vb_max_LR_Month	35030	Word	BCD	1-12			
Vb_max_LR_Date	35031	Word	BCD	1-31			
Vb_max_LR_Hour	35032	Word	BCD	0-23			
Vb_max_LR_Min	35033	Word	BCD	0-59			
Vb_max_LR_Second	35034	Word	BCD	0-59			
Vb_min_LR	35035-35036	DWord	Float				
Vb_min_LR_Year	35037	Word	BCD	00-99			
Vb_min_LR_Month	35038	Word	BCD	1-12			
Vb_min_LR_Date	35039	Word	BCD	1-31			
Vb_min_LR_Hour	35040	Word	BCD	0-23			
Vb_min_LR_Min	35041	Word	BCD	0-59			
Vb_min_LR_Second	35042	Word	BCD	0-59			
Vc_max_LR	35043-35044	DWord	Float				
Vc_max_LR_Year	35045	Word	BCD	00-99			
Vc_max_LR_Month	35046	Word	BCD	1-12			
Vc_max_LR_Date	35047	Word	BCD	1-31			
Vc_max_LR_Hour	35048	Word	BCD	0-23			
Vc_max_LR_Min	35049	Word	BCD	0-59			
Vc_max_LR_Second	35050	Word	BCD	0-59			
Vc_min_LR	35051-35052	DWord	Float				
Vc_min_LR_Year	35053	Word	BCD	00-99			
Vc_min_LR_Month	35054	Word	BCD	1-12			
Vc_min_LR_Date	35055	Word	BCD	1-31			
Vc_min_LR_Hour	35056	Word	BCD	0-23			
Vc_min_LR_Min	35057	Word	BCD	0-59			
Vc_min_LR_Second	35058	Word	BCD	0-59			
Ia_max_LR	35059-35060	DWord	Float				
Ia_max_LR_Year	35061	Word	BCD	00-99			
Ia_max_LR_Month	35062	Word	BCD	1-12			
Ia_max_LR_Date	35063	Word	BCD	1-31			
Ia_max_LR_Hour	35064	Word	BCD	0-23			
Ia_max_LR_Min	35065	Word	BCD	0-59			
Ia_max_LR_Second	35066	Word	BCD	0-59			
Ia_min_LR	35067-35068	DWord	Float				
Ia_min_LR_Year	35069	Word	BCD	00-99			
Ia_min_LR_Month	35070	Word	BCD	1-12			
Ia_min_LR_Date	35071	Word	BCD	1-31			
Ia_min_LR_Hour	35072	Word	BCD	0-23			
Ia_min_LR_Min	35073	Word	BCD	0-59			
Ia_min_LR_Second	35074	Word	BCD	0-59			
Ib_max_LR	35075-35076	DWord	Float				
Ib_max_LR_Year	35077	Word	BCD	00-99			
Ib_max_LR_Month	35078	Word	BCD	1-12			
Ib_max_LR_Date	35079	Word	BCD	1-31			
Ib_max_LR_Hour	35080	Word	BCD	0-23			
Ib_max_LR_Min	35081	Word	BCD	0-59			
Ib_max_LR_Second	35082	Word	BCD	0-59			
Ib_min_LR	35083-35084	DWord	Float				
Ib_min_LR_Year	35085	Word	BCD	00-99			
Ib_min_LR_Month	35086	Word	BCD	1-12			
Ib_min_LR_Date	35087	Word	BCD	1-31			
Ib_min_LR_Hour	35088	Word	BCD	0-23			
Ib_min_LR_Min	35089	Word	BCD	0-59			
Ib_min_LR_Second	35090	Word	BCD	0-59			
Ic_max_LR	35091-35092	DWord	Float				
Ic_max_LR_Year	35093	Word	BCD	00-99			
Ic_max_LR_Month	35094	Word	BCD	1-12			
Ic_max_LR_Date	35095	Word	BCD	1-31			
Ic_max_LR_Hour	35096	Word	BCD	0-23			
Ic_max_LR_Min	35097	Word	BCD	0-59			
Ic_max_LR_Second	35098	Word	BCD	0-59			
Ic_min_LR	35099-	DWord	Float				

	35100						
Ic_min_LR_Year	35101	Word	BCD	00-99			
Ic_min_LR_Month	35102	Word	BCD	1-12			
Ic_min_LR_Date	35103	Word	BCD	1-31			
Ic_min_LR_Hour	35104	Word	BCD	0-23			
Ic_min_LR_Min	35105	Word	BCD	0-59			
Ic_min_LR_Second	35106	Word	BCD	0-59			
KWa_max_LR	35107-35108	DWord	Float				
KWa_max_LR_Year	35109	Word	BCD	00-99			
KWa_max_LR_Month	35110	Word	BCD	1-12			
KWa_max_LR_Date	35111	Word	BCD	1-31			
KWa_max_LR_Hour	35112	Word	BCD	0-23			
KWa_max_LR_Min	35113	Word	BCD	0-59			
KWa_max_LR_Second	35114	Word	BCD	0-59			
KWa_min_LR	35115-35116	DWord	Float				
KWa_min_LR_Date	35117	Word	BCD	00-99			
KWa_min_LR_Month	35118	Word	BCD	1-12			
KWa_min_LR_Date	35119	Word	BCD	1-31			
KWa_min_LR_Hour	35120	Word	BCD	0-23			
KWa_min_LR_Min	35121	Word	BCD	0-59			
KWa_min_LR_Second	35122	Word	BCD	0-59			
KWb_max_LR	35123-35124	DWord	Float				
KWb_max_LR_Year	35125	Word	BCD	00-99			
KWb_max_LR_Month	35126	Word	BCD	1-12			
KWb_max_LR_Date	35127	Word	BCD	1-31			
KWb_max_LR_Hour	35128	Word	BCD	0-23			
KWb_max_LR_Min	35129	Word	BCD	0-59			
KWb_max_LR_Second	35130	Word	BCD	0-59			
KWb_min_LR	35131-35132	DWord	Float				
KWb_min_LR_Year	35133	Word	BCD	00-99			
KWb_min_LR_Month	35134	Word	BCD	1-12			
KWb_min_LR_Date	35135	Word	BCD	1-31			
KWb_min_LR_Hour	35136	Word	BCD	0-23			
KWb_min_LR_Min	35137	Word	BCD	0-59			
KWb_min_LR_Second	35138	Word	BCD	0-59			
KWc_max_LR	35139-35140	DWord	Float				
KWc_max_LR_Year	35141	Word	BCD	00-99			
KWc_max_LR_Month	35142	Word	BCD	1-12			
KWc_max_LR_Date	35143	Word	BCD	1-31			
KWc_max_LR_Hour	35144	Word	BCD	0-23			
KWc_max_LR_Min	35145	Word	BCD	0-59			
KWc_max_LR_Second	35146	Word	BCD	0-59			
KWc_min_LR	35147-35148	DWord	Float				
KWc_min_LR_Year	35149	Word	BCD	00-99			
KWc_min_LR_Month	35150	Word	BCD	1-12			
KWc_min_LR_Date	35151	Word	BCD	1-31			
KWc_min_LR_Hour	35152	Word	BCD	0-23			
KWc_min_LR_Min	35153	Word	BCD	0-59			
KWc_min_LR_Second	35154	Word	BCD	0-59			
KVAa_max_LR	35155-35156	DWord	Float				
KVAa_max_LR_Year	35157	Word	BCD	00-99			
KVAa_max_LR_Month	35158	Word	BCD	1-12			
KVAa_max_LR_Date	35159	Word	BCD	1-31			
KVAa_max_LR_Hour	35160	Word	BCD	0-23			
KVAa_max_LR_Min	35161	Word	BCD	0-59			
KVAa_max_LR_Second	35162	Word	BCD	0-59			
KVAa_min_LR	35163-35164	DWord	Float				
KVAa_min_LR_Year	35165	Word	BCD	00-99			
KVAa_min_LR_Month	35166	Word	BCD	1-12			
KVAa_min_LR_Date	35167	Word	BCD	1-31			
KVAa_min_LR_Hour	35168	Word	BCD	0-23			
KVAa_min_LR_Min	35169	Word	BCD	0-59			
KVAa_min_LR_Second	35170	Word	BCD	0-59			

KVAb_max_LR	35171-35172	DWord	Float				
KVAb_max_LR_Year	35173	Word	BCD	00-99			
KVAb_max_LR_Month	35174	Word	BCD	1-12			
KVAb_max_LR_Date	35175	Word	BCD	1-31			
KVAb_max_LR_Hour	35176	Word	BCD	0-23			
KVAb_max_LR_Min	35177	Word	BCD	0-59			
KVAb_max_LR_Second	35178	Word	BCD	0-59			
KVAb_min_LR	35179-35180	DWord	Float				
KVAb_min_LR_Year	35181	Word	BCD	00-99			
KVAb_min_LR_Month	35182	Word	BCD	1-12			
KVAb_min_LR_Date	35183	Word	BCD	1-31			
KVAb_min_LR_Hour	35184	Word	BCD	0-23			
KVAb_min_LR_Min	35185	Word	BCD	0-59			
KVAb_min_LR_Second	35186	Word	BCD	0-59			
KVAc_max_LR	35187-35188	DWord	Float				
KVAc_max_LR_Year	35189	Word	BCD	00-99			
KVAc_max_LR_Month	35190	Word	BCD	1-12			
KVAc_max_LR_Date	35191	Word	BCD	1-31			
KVAc_max_LR_Hour	35192	Word	BCD	0-23			
KVAc_max_LR_Min	35193	Word	BCD	0-59			
KVAc_max_LR_Second	35194	Word	BCD	0-59			
KVAc_min_LR	35195-35196	DWord	Float				
KVAc_min_LR_Year	35197	Word	BCD	00-99			
KVAc_min_LR_Month	35198	Word	BCD	1-12			
KVAc_min_LR_Date	35199	Word	BCD	1-31			
KVAc_min_LR_Hour	35200	Word	BCD	0-23			
KVAc_min_LR_Min	35201	Word	BCD	0-59			
KVAc_min_LR_Second	35202	Word	BCD	0-59			
PFa_min_LR	35203-35204	DWord	Float				
PFa_min_LR_Year	35205	Word	BCD	00-99			
PFa_min_LR_Month	35206	Word	BCD	1-12			
PFa_min_LR_Date	35207	Word	BCD	1-31			
PFa_min_LR_Hour	35208	Word	BCD	0-23			
PFa_min_LR_Min	35209	Word	BCD	0-59			
PFa_min_LR_Second	35210	Word	BCD	0-59			
PFb_min_LR	35211-35212	DWord	Float				
PFb_min_LR_Year	35213	Word	BCD	00-99			
PFb_min_LR_Month	35214	Word	BCD	1-12			
PFb_min_LR_Date	35215	Word	BCD	1-31			
PFb_min_LR_Hour	35216	Word	BCD	0-23			
PFb_min_LR_Min	35217	Word	BCD	0-59			
PFb_min_LR_Second	35218	Word	BCD	0-59			
PFc_min_LR	35219-35220	DWord	Float				
PFc_min_LR_Year	35221	Word	BCD	00-99			
PFc_min_LR_Month	35222	Word	BCD	1-12			
PFc_min_LR_Date	35223	Word	BCD	1-31			
PFc_min_LR_Hour	35224	Word	BCD	0-23			
PFc_min_LR_Min	35225	Word	BCD	0-59			
PFc_min_LR_Second	35226	Word	BCD	0-59			
VaTHD_max_LR	35227-35228	DWord	Float				
VaTHD_max_LR_Year	35229	Word	BCD	00-99			
VaTHD_max_LR_Month	35230	Word	BCD	1-12			
VaTHD_max_LR_Date	35231	Word	BCD	1-31			
VaTHD_max_LR_Hour	35232	Word	BCD	0-23			
VaTHD_max_LR_Min	35233	Word	BCD	0-59			
VaTHD_max_LR_Second	35234	Word	BCD	0-59			
VbTHD_max_LR	35235-35236	DWord	Float				
VbTHD_max_LR_Year	35237	Word	BCD	00-99			
VbTHD_max_LR_Month	35238	Word	BCD	1-12			
VbTHD_max_LR_Date	35239	Word	BCD	1-31			
VbTHD_max_LR_Hour	35240	Word	BCD	0-23			
VbTHD_max_LR_Min	35241	Word	BCD	0-59			

VbTHD_max_LR_Second	35242	Word	BCD	0-59			
VcTHD_max_LR	35243-35244	DWord	Float				
VcTHD_max_LR_Year	35245	Word	BCD	00-99			
VcTHD_max_LR_Month	35246	Word	BCD	1-12			
VcTHD_max_LR_Date	35247	Word	BCD	1-31			
VcTHD_max_LR_Hour	35248	Word	BCD	0-23			
VcTHD_max_LR_Min	35249	Word	BCD	0-59			
VcTHD_max_LR_Second	35250	Word	BCD	0-59			
IaTHD_max_LR	35251-35252	DWord	Float				
IaTHD_max_LR_Year	35253	Word	BCD	00-99			
IaTHD_max_LR_Month	35254	Word	BCD	1-12			
IaTHD_max_LR_Date	35255	Word	BCD	1-31			
IaTHD_max_LR_Hour	35256	Word	BCD	0-23			
IaTHD_max_LR_Min	35257	Word	BCD	0-59			
IaTHD_max_LR_Second	35258	Word	BCD	0-59			
IbTHD_max_LR	35259-35260	DWord	Float				
IbTHD_max_LR_Year	35261	Word	BCD	00-99			
IbTHD_max_LR_Month	35262	Word	BCD	1-12			
IbTHD_max_LR_Date	35263	Word	BCD	1-31			
IbTHD_max_LR_Hour	35264	Word	BCD	0-23			
IbTHD_max_LR_Min	35265	Word	BCD	0-59			
IbTHD_max_LR_Second	35266	Word	BCD	0-59			
IcTHD_max_LR	35267-35268	DWord	Float				
IcTHD_max_LR_Year	35269	Word	BCD	00-99			
IcTHD_max_LR_Month	35270	Word	BCD	1-12			
IcTHD_max_LR_Date	35271	Word	BCD	1-31			
IcTHD_max_LR_Hour	35272	Word	BCD	0-23			
IcTHD_max_LR_Min	35273	Word	BCD	0-59			
IcTHD_max_LR_Second	35274	Word	BCD	0-59			
Demand_max_LR	35275-35276	DWord	Float				
Demand_max_LR_Year	35277	Word	BCD	2000-2099			
Demand_max_LR_Month	35278	Word	BCD	1-12			
Demand_max_LR_Date	35279	Word	BCD	1-31			
Demand_max_LR_Hour	35280	Word	BCD	0-23			
Demand_max_LR_Min	35281	Word	BCD	0-59			
Demand_max_LR_Second	35282	Word	BCD	0-59			
KWH_del_LR	35283-35284	DWord	Float				
KWH_rec_LR	35285-35286	DWord	Float				
KWH_tot_LR	35287-35288	DWord	Float				

Modbus Module #19 Input Register : Event Log Sag Record

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Sag01_Duration_Cycles	35289	Word	UINT				
Sag01_Data	35290	Word	INT	Range：-327.68% ~ 327.67%			
Sag01_Phase	35291	Word	UINT	0: A相 1: B相 2: C相			
Sag01_Start_Time	35292-35297	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag01_End_Time	35298-35303	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag02_Duration_Cycles	35304	Word	UINT				
Sag02_Data	35305	Word	INT	Range：-327.68%			

				~ 327.67%			
Sag02_Phase	35306	Word	UINT	0: A相 1: B相 2: C 相			
Sag02_Start_time	35307-35312	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag02_End_time	35313-35318	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag03_Duration_Cycles	35319	Word	UINT				
Sag03_Data	35320	Word	INT	Range：-327.68% ~ 327.67%			
Sag03_Phase	35321	Word	UINT	0: A相 1: B相 2: C 相			
Sag03_Start_time	35322-35327	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag03_End_time	35328-35333	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag04_Duration_Cycles	35334	Word	UINT				
Sag04_Data	35335	Word	INT	Range：-327.68% ~ 327.67%			
Sag04_Phase	35336	Word	UINT	0: A相 1: B相 2: C 相			
Sag04_Start_time	35337-35342	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag04_End_time	35343-35348	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag05_Duration_Cycles	35349	Word	UINT				
Sag05_Data	35350	Word	INT	Range：-327.68% ~ 327.67%			
Sag05_Phase	35351	Word	UINT	0: A相 1: B相 2: C 相			
Sag05_Start_time	35352-35357	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag05_End_time	35358-35363	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag06_Duration_Cycles	35364	Word	UINT				
Sag06_Data	35365	Word	INT	Range：-327.68% ~ 327.67%			
Sag06_Phase	35366	Word	UINT	0: A相 1: B相 2: C			

				相			
Sag06_Start_time	35367- 35372	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag06_End_time	35373- 35378	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag07_Duration_Cycles	35379	Word	UINT				
Sag07_Data	35380	Word	INT	Range：-327.68% ~ 327.67%			
Sag07_Phase	35381	Word	UINT	0: A相 1: B相 2: C 相			
Sag07_Start_time	35382- 35387	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag07_End_time	35388- 35393	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag08_Duration_Cycles	35394	Word	UINT				
Sag08_Data	35385	Word	INT	Range：-327.68% ~ 327.67%			
Sag08_Phase	35396	Word	UINT	0: A相 1: B相 2: C 相			
Sag08_Start_time	35397- 35402	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag08_End_time	35403- 35408	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag09_Duration_Cycles	35409	Word	UINT				
Sag09_Data	35410	Word	INT	Range：-327.68% ~ 327.67%			
Sag09_Phase	35411	Word	UINT	0: A相 1: B相 2: C 相			
Sag09_Start_time	35412- 35417	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag09_End_time	35418- 35423	Word x 6	Date & Time (BCD)	Year：00-99 Month：1-12 Date：1-31 Hour：0-23 Minute：0-59 Second：0-59			
Sag10_Duration_Cycles	35424	Word	UINT				
Sag10_Data	35425	Word	INT	Range：-327.68% ~ 327.67%			
Sag10_Phase	35426	Word	UINT	0: A phase 1: B phase 2: C phase			

Sag10_Start_time	35427-35432	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag10_End_time	35433-35438	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag11_Duration_Cycles	35439	Word	UINT				
Sag11_Data	35440	Word	INT	Range : -327.68% ~ 327.67%			
Sag11_Phase	35441	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag11_Start_time	35442-35447	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag11_End_time	35448-35453	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag12_Duration_Cycles	35454	Word	UINT				
Sag12_Data	35455	Word	INT	Range : -327.68% ~ 327.67%			
Sag12_Phase	35456	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag12_Start_time	35457-35462	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag12_End_time	35463-35468	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag13_Duration_Cycles	35469	Word	UINT				
Sag13_Data	35470	Word	INT	Range : -327.68% ~ 327.67%			
Sag13_Phase	35471	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag13_Start_time	35472-35477	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag13_End_time	35478-35483	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag14_Duration_Cycles	35484	Word	UINT				
Sag14_Data	35485	Word	INT	Range : -327.68% ~ 327.67%			

Sag14_Phase	35486	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag14_Start_time	35487-35492	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag14_End_time	35493-35498	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag15_Duration_Cycles	35499	Word	UINT				
Sag15_Data	35500	Word	INT	Range : -327.68% ~ 327.67%			
Sag15_Phase	35501	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag15_Start_time	35502-35507	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag15_End_time	35508-35513	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag16_Duration_Cycles	35514	Word	UINT				
Sag16_Data	35515	Word	INT	Range : -327.68% ~ 327.67%			
Sag16_Phase	35516	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag16_Start_time	35517-35522	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag16_End_time	35523-35528	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag17_Duration_Cycles	35529	Word	UINT				
Sag17_Data	35530	Word	INT	Range : -327.68% ~ 327.67%			
Sag17_Phase	35531	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag17_Start_time	35532-35537	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			

Sag17_End_time	35538-35543	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag18_Duration_Cycles	35544	Word	UINT				
Sag18_Data	35545	Word	INT	Range : -327.68% ~ 327.67%			
Sag18_Phase	35546	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag18_Start_time	35547-35552	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag18_End_time	35553-35558	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag19_Duration_Cycles	35559	Word	UINT				
Sag19_Data	35560	Word	INT	Range : -327.68% ~ 327.67%			
Sag19_Phase	35561	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag19_Start_time	35562-35567	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag19_End_time	35568-35573	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag20_Duration_Cycles	35574	Word	UINT				
Sag20_Data	35575	Word	INT	Range : -327.68% ~ 327.67%			
Sag20_Phase	35576	Word	UINT	0: A phase 1: B phase 2: C phase			
Sag20_Start_time	35577-35582	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Sag20_End_time	35583-35588	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			

Modbus Module #20 Input Register : Event Log Swell Record

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Swell01_Duration_Cycles	35589	Word	UINT				
Swell01_Data	35590	Word	INT	Range : -327.68% ~			

				327.67%			
Swell01_Phase	35591	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell01_Start_Time	35592-35597	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell01_End_Time	35598-35603	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell02_Duration_Cycles	35604	Word	UINT				
Swell02_Data	35605	Word	INT	Range : -327.68% ~ 327.67%			
Swell02_Phase	35606	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell02_Start_time	35607-35612	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell02_End_time	35613-35618	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell03_Duration_Cycles	35619	Word	UINT				
Swell03_Data	35620	Word	INT	Range : -327.68% ~ 327.67%			
Swell03_Phase	35621	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell03_Start_time	35622-35627	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell03_End_time	35628-35633	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell04_Duration_Cycles	35634	Word	UINT				
Swell04_Data	35635	Word	INT	Range : -327.68% ~ 327.67%			
Swell04_Phase	35636	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell04_Start_time	35637-35642	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			

Swell04_End_time	35643-35648	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell05_Duration_Cycles	35649	Word	UINT				
Swell05_Data	35650	Word	INT	Range : -327.68% ~ 327.67%			
Swell05_Phase	35651	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell05_Start_time	35652-35657	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell05_End_time	35658-35663	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell06_Duration_Cycles	35664	Word	UINT				
Swell06_Data	35665	Word	INT	Range : -327.68% ~ 327.67%			
Swell06_Phase	35666	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell06_Start_time	35667-35672	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell06_End_time	35673-35678	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell07_Duration_Cycles	35679	Word	UINT				
Swell07_Data	35680	Word	INT	Range : -327.68% ~ 327.67%			
Swell07_Phase	35681	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell07_Start_time	35682-35687	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell07_End_time	35688-35693	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell08_Duration_Cycles	35694	Word	UINT				
Swell08_Data	35695	Word	INT	Range : -327.68% ~ 327.67%			
Swell08_Phase	35696	Word	UINT	0: A phase 1: B phase 2: C phase			

Swell08_Start_time	35697- 35702	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell08_End_time	35703- 35708	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell09_Duration_Cycles	35709	Word	UINT				
Swell09_Data	35710	Word	INT	Range : -327.68% ~ 327.67%			
Swell09_Phase	35711	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell09_Start_time	35712- 35717	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell09_End_time	35718- 35723	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell10_Duration_Cycles	35724	Word	UINT				
Swell10_Data	35725	Word	INT	Range : -327.68% ~ 327.67%			
Swell10_Phase	35726	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell10_Start_time	35727- 35732	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell10_End_time	35733- 35738	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell11_Duration_Cycles	35739	Word	UINT				
Swell11_Data	35740	Word	INT	Range : -327.68% ~ 327.67%			
Swell11_Phase	35741	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell11_Start_time	35742- 35747	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			

Swell11_End_time	35748-35753	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell12_Duration_Cycles	35754	Word	UINT				
Swell12_Data	35755	Word	INT	Range : -327.68% ~ 327.67%			
Swell12_Phase	35756	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell12_Start_time	35757-35762	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell12_End_time	35763-35768	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell13_Duration_Cycles	35769	Word	UINT				
Swell13_Data	35770	Word	INT	Range : -327.68% ~ 327.67%			
Swell13_Phase	35771	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell13_Start_time	35772-35777	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell13_End_time	35778-35783	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell14_Duration_Cycles	35784	Word	UINT				
Swell14_Data	35785	Word	INT	Range : -327.68% ~ 327.67%			
Swell14_Phase	35786	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell14_Start_time	35787-35792	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell14_End_time	35793-35798	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell15_Duration_Cycles	35799	Word	UINT				
Swell15_Data	35800	Word	INT	Range : -327.68% ~ 327.67%			
Swell15_Phase	35801	Word	UINT	0: A phase 1: B			

				phase 2: C phase			
Swell15_Start_time	35802-35807	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell15_End_time	35808-35813	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell16_Duration_Cycles	35814	Word	UINT				
Swell16_Data	35815	Word	INT	Range : -327.68% ~ 327.67%			
Swell16_Phase	35816	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell16_Start_time	35817-35822	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell16_End_time	35823-35828	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell17_Duration_Cycles	35829	Word	UINT				
Swell17_Data	35830	Word	INT	Range : -327.68% ~ 327.67%			
Swell17_Phase	35831	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell17_Start_time	35832-35837	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell17_End_time	35838-35843	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell18_Duration_Cycles	35844	Word	UINT				
Swell18_Data	35845	Word	INT	Range : -327.68% ~ 327.67%			
Swell18_Phase	35846	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell18_Start_time	35847-35852	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			

Swell18_End_time	35853- 35858	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell19_Duration_Cycles	35859	Word	UINT				
Swell19_Data	35860	Word	INT	Range : -327.68% ~ 327.67%			
Swell19_Phase	35861	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell19_Start_time	35862- 35867	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell19_End_time	35868- 35873	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell20_Duration_Cycles	35874	Word	UINT				
Swell20_Data	35875	Word	INT	Range : -327.68% ~ 327.67%			
Swell20_Phase	35876	Word	UINT	0: A phase 1: B phase 2: C phase			
Swell20_Start_time	35877- 35882	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Swell20_End_time	35883- 35888	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			

Modbus Module #21 Input Register : Event Log Alarm Record

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Alarm01_Item	35889	Word	UINT				
Alarm01_Data	35890	Word	INT	Range : -327.68% ~ 327.67%			
Alarm01_Time	35891- 35896	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm02_Item	35897	Word	UINT				
Alarm02_Data	35898	Word	INT	Range : -327.68% ~ 327.67%			

Alarm02_Time	35899-35904	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm03_Item	35905	Word	UINT				
Alarm03_Data	35906	Word	INT	Range : -327.68% ~ 327.67%			
Alarm03_Time	35907-35912	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm04_Item	35913	Word	UINT				
Alarm04_Data	35914	Word	INT	Range : -327.68% ~ 327.67%			
Alarm04_Time	35915-35920	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm05_Item	35921	Word	UINT				
Alarm05_Data	35922	Word	INT	Range : -327.68% ~ 327.67%			
Alarm05_Time	35923-35928	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm06_Item	35929	Word	UINT				
Alarm06_Data	35930	Word	INT	Range : -327.68% ~ 327.67%			
Alarm06_Time	35931-35936	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm07_Item	35937	Word	UINT				
Alarm07_Data	35938	Word	INT	Range : -327.68% ~ 327.67%			
Alarm07_Time	35939-35944	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm08_Item	35945	Word	UINT				
Alarm08_Data	35946	Word	INT	Range : -327.68% ~ 327.67%			
Alarm08_Time	35947-35952	Word x 6	Date & Time (BCD)	Year : 2000-2099 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm09_Item	35953	Word	UINT				

Alarm09_Data	35954	Word	INT	Range : -327.68% ~ 327.67%			
Alarm09_Time	35955- 35960	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm10_Item	35961	Word	UINT				
Alarm10_Data	35962	Word	INT	Range : -327.68% ~ 327.67%			
Alarm10_Time	35963- 35968	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm11_Item	35969	Word	UINT				
Alarm11_Data	35970	Word	INT	Range : -327.68% ~ 327.67%			
Alarm11_Time	35971- 35976	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm12_Item	35977	Word	UINT				
Alarm12_Data	35978	Word	INT	Range : -327.68% ~ 327.67%			
Alarm12_Time	35979- 35984	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm13_Item	35985	Word	UINT				
Alarm13_Data	35986	Word	INT	Range : -327.68% ~ 327.67%			
Alarm13_Time	35987- 35992	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm14_Item	35993	Word	UINT				
Alarm14_Data	35994	Word	INT	Range : -327.68% ~ 327.67%			
Alarm14_Time	35995- 36000	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm15_Item	36001	Word	UINT				
Alarm15_Data	36002	Word	INT	Range : -327.68% ~ 327.67%			

Alarm15_Time	36003- 36008	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm16_Item	36009	Word	UINT				
Alarm16_Data	36010	Word	INT	Range : -327.68% ~ 327.67%			
Alarm16_Time	36011- 36016	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm17_Item	36017	Word	UINT				
Alarm17_Data	36018	Word	INT	Range : -327.68% ~ 327.67%			
Alarm17_Time	36019- 36024	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm18_Item	36025	Word	UINT				
Alarm18_Data	36026	Word	INT	Range : -327.68% ~ 327.67%			
Alarm18_Time	36027- 36032	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm19_Item	36033	Word	UINT				
Alarm19_Data	36034	Word	INT	Range : -327.68% ~ 327.67%			
Alarm19_Time	36035- 36040	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			
Alarm20_Item	36041	Word	UINT				
Alarm20_Data	36042	Word	INT	Range : -327.68% ~ 327.67%			
Alarm20_Time	36043- 36048	Word x 6	Date & Time (BCD)	Year : 00-99 Month : 1-12 Date : 1-31 Hour : 0-23 Minute : 0-59 Second : 0-59			

Modbus Module #22 Input Register : Total Harmonics

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
TOT_HD_V_a	36657- 36658	DWord	Float				
TOT_HD_V_b	36659- 36660	DWord	Float				
TOT_HD_V_c	36661- 36662	DWord	Float				
TOT_HD_I_a	36663- 36664	DWord	Float				
TOT_HD_I_b	36665-	DWord	Float				

	36666						
TOT_HD_I_c	36667-36668	DWord	Float				
TOT_HD_I_n	36669-36670	DWord	Float				

Modbus Module #23 Input Register : Total Odd & Even Harmonics

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
TOT_EVEN_HD_V_a	36671-36672	DWord	Float				
TOT_EVEN_HD_V_b	36673-36674	DWord	Float				
TOT_EVEN_HD_V_c	36675-36676	DWord	Float				
TOT_EVEN_HD_I_a	36677-36678	DWord	Float				
TOT_EVEN_HD_I_b	36679-36680	DWord	Float				
TOT_EVEN_HD_I_c	36681-36682	DWord	Float				
TOT_EVEN_HD_I_n	36683-36684	DWord	Float				
TOT_ODD_HD_V_a	36685-36686	DWord	Float				
TOT_ODD_HD_V_b	36687-36688	DWord	Float				
TOT_ODD_HD_V_c	36689-36690	DWord	Float				
TOT_ODD_HD_I_a	36691-36692	DWord	Float				
TOT_ODD_HD_I_b	36693-36694	DWord	Float				
TOT_ODD_HD_I_c	36695-36696	DWord	Float				
TOT_ODD_HD_I_n	36697-36698	DWord	Float				

Modbus Module #24 Input Register : Phase A Voltage Harmonics

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Reserved	36699-36700	DWord	Float				
HD1_V_a	36701-36702	DWord	Float				
HD2_V_a	36703-36704	DWord	Float				
HD3_V_a	36705-36706	DWord	Float				
HD4_V_a	36707-36708	DWord	Float				
HD5_V_a	36709-36710	DWord	Float				
HD6_V_a	36711-36712	DWord	Float				
HD7_V_a	36713-36714	DWord	Float				
HD8_V_a	36715-36716	DWord	Float				
HD9_V_a	36717-36718	DWord	Float				
HD10_V_a	36719-36720	DWord	Float				
HD11_V_a	36721-36722	DWord	Float				
HD12_V_a	36723-36724	DWord	Float				
HD13_V_a	36725-36726	DWord	Float				
HD14_V_a	36727-	DWord	Float				

	36728						
HD15_V_a	36729-36730	DWord	Float				
HD16_V_a	36731-36732	DWord	Float				
HD17_V_a	36733-36734	DWord	Float				
HD18_V_a	36735-36736	DWord	Float				
HD19_V_a	36737-36738	DWord	Float				
HD20_V_a	36739-36740	DWord	Float				
HD21_V_a	36741-36742	DWord	Float				
HD22_V_a	36743-36744	DWord	Float				
HD23_V_a	36745-36746	DWord	Float				
HD24_V_a	36747-36748	DWord	Float				
HD25_V_a	36749-36750	DWord	Float				
HD26_V_a	36751-36752	DWord	Float				
HD27_V_a	36753-36754	DWord	Float				
HD28_V_a	36755-36756	DWord	Float				
HD29_V_a	36757-36758	DWord	Float				
HD30_V_a	36759-36760	DWord	Float				
HD31_V_a	36761-36762	DWord	Float				

Modbus Module #25 Input Register : Phase B Voltage Harmonics

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Reserved	36763-36764	DWord	Float				
HD1_V_b	36765-36766	DWord	Float				
HD2_V_b	36767-36768	DWord	Float				
HD3_V_b	36769-36770	DWord	Float				
HD4_V_b	36771-36772	DWord	Float				
HD5_V_b	36773-36774	DWord	Float				
HD6_V_b	36775-36776	DWord	Float				
HD7_V_b	36777-36778	DWord	Float				
HD8_V_b	36779-36780	DWord	Float				
HD9_V_b	36781-36782	DWord	Float				
HD10_V_b	36783-36784	DWord	Float				
HD11_V_b	36785-36786	DWord	Float				
HD12_V_b	36787-36788	DWord	Float				
HD13_V_b	36789-36790	DWord	Float				
HD14_V_b	36791-36792	DWord	Float				
HD15_V_b	36793-36794	DWord	Float				

HD16_V_b	36795-36796	DWord	Float				
HD17_V_b	36797-36798	DWord	Float				
HD18_V_b	36799-36800	DWord	Float				
HD19_V_b	36801-36802	DWord	Float				
HD20_V_b	36803-36804	DWord	Float				
HD21_V_b	36805-36806	DWord	Float				
HD22_V_b	36807-36808	DWord	Float				
HD23_V_b	36809-36810	DWord	Float				
HD24_V_b	36811-36812	DWord	Float				
HD25_V_b	36813-36814	DWord	Float				
HD26_V_b	36815-36816	DWord	Float				
HD27_V_b	36817-36818	DWord	Float				
HD28_V_b	36819-36820	DWord	Float				
HD29_V_b	36821-36822	DWord	Float				
HD30_V_b	36823-36824	DWord	Float				
HD31_V_b	36825-36826	DWord	Float				

Modbus Module #26 Input Register : Phase C Voltage Harmonics

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Reserved	36827-36828	DWord	Float				
HD1_V_c	36829-36830	DWord	Float				
HD2_V_c	36831-36832	DWord	Float				
HD3_V_c	36833-36834	DWord	Float				
HD4_V_c	36835-36836	DWord	Float				
HD5_V_c	36837-36838	DWord	Float				
HD6_V_c	36839-36840	DWord	Float				
HD7_V_c	36841-36842	DWord	Float				
HD8_V_c	36843-36844	DWord	Float				
HD9_V_c	36845-36846	DWord	Float				
HD10_V_c	36847-36848	DWord	Float				
HD11_V_c	36849-36850	DWord	Float				
HD12_V_c	36851-36852	DWord	Float				
HD13_V_c	36853-6854	DWord	Float				
HD14_V_c	36855-36856	DWord	Float				
HD15_V_c	36857-36858	DWord	Float				
HD16_V_c	36859-36860	DWord	Float				
HD17_V_c	36861-	DWord	Float				

	36862						
HD18_V_c	36863-36864	DWord	Float				
HD19_V_c	36865-36866	DWord	Float				
HD20_V_c	36867-36868	DWord	Float				
HD21_V_c	36869-36870	DWord	Float				
HD22_V_c	36871-36872	DWord	Float				
HD23_V_c	36873-36874	DWord	Float				
HD24_V_c	36875-36876	DWord	Float				
HD25_V_c	36877-36878	DWord	Float				
HD26_V_c	36879-36880	DWord	Float				
HD27_V_c	36881-36882	DWord	Float				
HD28_V_c	36883-36884	DWord	Float				
HD29_V_c	36885-36886	DWord	Float				
HD30_V_c	36887-36888	DWord	Float				
HD31_V_c	36889-36890	DWord	Float				

Modbus Module #27 Input Register : Phase A Current Harmonics

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Reserved	36891-36892	DWord	Float				
HD1_I_a	36893-36894	DWord	Float				
HD2_I_a	36895-36896	DWord	Float				
HD3_I_a	36897-36898	DWord	Float				
HD4_I_a	36899-36900	DWord	Float				
HD5_I_a	36901-36902	DWord	Float				
HD6_I_a	36903-36904	DWord	Float				
HD7_I_a	36905-36906	DWord	Float				
HD8_I_a	36907-36908	DWord	Float				
HD9_I_a	36909-36910	DWord	Float				
HD10_I_a	36911-36912	DWord	Float				
HD11_I_a	36913-36914	DWord	Float				
HD12_I_a	36915-36916	DWord	Float				
HD13_I_a	36917-36918	DWord	Float				
HD14_I_a	36919-36920	DWord	Float				
HD15_I_a	36921-36922	DWord	Float				
HD16_I_a	36923-36924	DWord	Float				
HD17_I_a	36925-36926	DWord	Float				
HD18_I_a	36927-36928	DWord	Float				

HD19_I_a	36929-36930	DWord	Float				
HD20_I_a	36931-36932	DWord	Float				
HD21_I_a	36933-36934	DWord	Float				
HD22_I_a	36935-36936	DWord	Float				
HD23_I_a	36937-36938	DWord	Float				
HD24_I_a	36939-36940	DWord	Float				
HD25_I_a	36941-36942	DWord	Float				
HD26_I_a	36943-36944	DWord	Float				
HD27_I_a	36945-36946	DWord	Float				
HD28_I_a	36947-36948	DWord	Float				
HD29_I_a	36949-36950	DWord	Float				
HD30_I_a	36951-36952	DWord	Float				
HD31_I_a	36953-36954	DWord	Float				

Modbus Module #28 Input Register : Phase B Current Harmonics

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Reserved	36955-36956	DWord	Float				
HD1_I_b	36957-36958	DWord	Float				
HD2_I_b	36959-36960	DWord	Float				
HD3_I_b	36961-36962	DWord	Float				
HD4_I_b	36963-36964	DWord	Float				
HD5_I_b	36965-36966	DWord	Float				
HD6_I_b	36967-36968	DWord	Float				
HD7_I_b	36969-36970	DWord	Float				
HD8_I_b	36971-36972	DWord	Float				
HD9_I_b	36973-36974	DWord	Float				
HD10_I_b	36975-36976	DWord	Float				
HD11_I_b	36977-36978	DWord	Float				
HD12_I_b	36979-36980	DWord	Float				
HD13_I_b	36981-36982	DWord	Float				
HD14_I_b	36983-36984	DWord	Float				
HD15_I_b	36985-36986	DWord	Float				
HD16_I_b	36987-36988	DWord	Float				
HD17_I_b	36989-36990	DWord	Float				
HD18_I_b	36991-36992	DWord	Float				
HD19_I_b	36993-36994	DWord	Float				
HD20_I_b	36995-	DWord	Float				

	36996						
HD21_I_b	36997-36998	DWord	Float				
HD22_I_b	36999-37000	DWord	Float				
HD23_I_b	37001-37002	DWord	Float				
HD24_I_b	37003-37004	DWord	Float				
HD25_I_b	37005-37006	DWord	Float				
HD26_I_b	37007-37008	DWord	Float				
HD27_I_b	37009-37010	DWord	Float				
HD28_I_b	37011-37012	DWord	Float				
HD29_I_b	37013-37014	DWord	Float				
HD30_I_b	37015-37016	DWord	Float				
HD31_I_b	37017-37018	DWord	Float				

Modbus Module #29 Input Register : Phase C Current Harmonics

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Reserved	37019-37020	DWord	Float				
HD1_I_c	37021-37022	DWord	Float				
HD2_I_c	37023-37024	DWord	Float				
HD3_I_c	37025-37026	DWord	Float				
HD4_I_c	37027-37028	DWord	Float				
HD5_I_c	37029-37030	DWord	Float				
HD6_I_c	37031-37032	DWord	Float				
HD7_I_c	37033-37034	DWord	Float				
HD8_I_c	37035-37036	DWord	Float				
HD9_I_c	37037-37038	DWord	Float				
HD10_I_c	37039-37040	DWord	Float				
HD11_I_c	37041-37042	DWord	Float				
HD12_I_c	37043-37044	DWord	Float				
HD13_I_c	37045-37046	DWord	Float				
HD14_I_c	37047-37048	DWord	Float				
HD15_I_c	37049-37050	DWord	Float				
HD16_I_c	37051-37052	DWord	Float				
HD17_I_c	37053-37054	DWord	Float				
HD18_I_c	37055-37056	DWord	Float				
HD19_I_c	37057-37058	DWord	Float				
HD20_I_c	37059-37060	DWord	Float				
HD21_I_c	37061-37062	DWord	Float				

HD22_I_c	37063-37064	DWord	Float				
HD23_I_c	37065-37066	DWord	Float				
HD24_I_c	37067-37068	DWord	Float				
HD25_I_c	37079-37070	DWord	Float				
HD26_I_c	37071-37072	DWord	Float				
HD27_I_c	37073-37074	DWord	Float				
HD28_I_c	37075-37076	DWord	Float				
HD29_I_c	37077-37078	DWord	Float				
HD30_I_c	37079-37080	DWord	Float				
HD31_I_c	37081-37082	DWord	Float				

Modbus Module #30 Input Register : Neutral Current Harmonics

Parameter name	Modbus Register	Len	Data Type	Range	Default value	Units	Comment
Reserved	37083-37084	DWord	Float				
HD1_I_n	37085-37086	DWord	Float				
HD2_I_n	37087-37088	DWord	Float				
HD3_I_n	37089-37090	DWord	Float				
HD4_I_n	37091-37092	DWord	Float				
HD5_I_n	37093-37094	DWord	Float				
HD6_I_n	37095-37096	DWord	Float				
HD7_I_n	37097-37098	DWord	Float				
HD8_I_n	37099-37100	DWord	Float				
HD9_I_n	37101-37102	DWord	Float				
HD10_I_n	37103 37104	DWord	Float				
HD11_I_n	37105-37106	DWord	Float				
HD12_I_n	37107-37108	DWord	Float				
HD13_I_n	37109-37110	DWord	Float				
HD14_I_n	37111-37112	DWord	Float				
HD15_I_n	37113-37114	DWord	Float				
HD16_I_n	37115-37116	DWord	Float				
HD17_I_n	37117-37118	DWord	Float				
HD18_I_n	37119-37120	DWord	Float				
HD19_I_n	37121-37122	DWord	Float				
HD20_I_n	37123-37124	DWord	Float				
HD21_I_n	37125-37126	DWord	Float				
HD22_I_n	37127-37128	DWord	Float				
HD23_I_n	37129-	DWord	Float				

	37130						
HD24_I_n	37131-37132	DWord	Float				
HD25_I_n	37133-37134	DWord	Float				
HD26_I_n	37135-37136	DWord	Float				
HD27_I_n	37137-37138	DWord	Float				
HD28_I_n	37139-37140	DWord	Float				
HD29_I_n	37141-37142	DWord	Float				
HD30_I_n	37143-37144	DWord	Float				
HD31_I_n	37145-37146	DWord	Float				

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